

BNWL-1824
UC-23
Radioisotope and
Radiation Applications

LIST OF AEC RADIOISOTOPE CUSTOMERS
WITH SUMMARY OF RADIOISOTOPE SHIPMENTS

FY 1973

Compiled by

Janice L. Simmons

Editing/Writing Section
Communications Department

Published for the
Division of Biomedical and Environmental Research
U.S. Atomic Energy Commission

NOTICE

This report was prepared at an account of **work** sponsored by the United States Government. Neither the United States nor the United States Atomic Energy Commission, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights.

BATTELLE
PACIFIC NORTHWEST LABORATORIES
RICHLAND, WASHINGTON 99352

This document is
PUBLICLY RELEASEABLE
Dawn E. Williams
Authorizing Official
Date: 06/13/2007

MASTER

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

Peg

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency Thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

NOMENCLATUREI. CLASSIFICATIONS

Cyclotron Service Irradiations	CSI	Miscellaneous Compound Preparations	MCP
Depleted Uranium	DU	Normal Uranium	NU
Enriched Uranium	EU	Reactor Service Irradiations	RSI
Fission Products	FP	Special Services	SS
		Targets	Tgs

II. ISOTOPE SUPPLIER

Argonne National Laboratory	(A)	Hanford Engineering Development Laboratory	(H)
Battelle-Pacific Northwest Laboratories	(P)	Mound Laboratory	(M)
Brookhaven National Laboratory	(B)	Oak Ridge National Laboratory	(O)
Idaho Nuclear Corporation	(I)	Savannah River Plant	(S)
		United Nuclear Inc.	(U)

CONTENTS

	Page
NOMENCLATURE.	ii
INTRODUCTION	1
I. ALPHABETICAL LIST OF CUSTOMERS, WITH ISOTOPES PURCHASED AND RESPECTIVE SUPPLIERS.	2
A. Domestic.	2
B. Foreign	18
II. ALPHABETICAL LIST OF ISOTOPES, CROSS-REFERENCED TO CUSTOMER NUMBERS	23
A. Domestic.	23
B. Foreign..	26
III. ALPHABETICAL LIST OF STATES AND COUNTRIES, CROSS-REFERENCED TO CUSTOMER NUMBERS	28
A. Domestic..	28
B. Foreign	29
IV. RADIOISOTOPE SALES AND TRANSFERS - FY 1973.	30

LIST OF AEC RADIOISOTOPE CUSTOMERS
WITH SUMMARY OF RADIOISOTOPE SHIPMENTS

FY 1973

INTRODUCTION

This tenth edition of the AEC radioisotope customer list has been prepared at the request of the Commission's Division of Biomedical and Environmental Research. It is a compilation of radioisotope sales during FY 1973 by AEC facilities (a) at Argonne National Laboratory, Battelle-Pacific Northwest Laboratories, Brookhaven National Laboratory, United Nuclear Inc., Idaho Nuclear Corporation, Hanford Engineering Development Laboratory, Mound Laboratory, Oak Ridge National Laboratory, and Savannah River Plant.

The information is divided into four sections. The first is an alphabetical list of domestic and foreign customers. Included are the isotopes purchased by each customer and the laboratory supplying each isotope. The second section is an alphabetical list of isotopes, cross-referenced to customer numbers and again divided into the domestic and foreign categories. The third section is an alphabetical list of states and countries, also cross-referenced to customer numbers, indicating geographical concentrations of isotope users. The final section is a comprehensive table providing an alphabetical listing of the isotopes and a breakdown of shipments, quantities, and dollars for each isotope under the Domestic, Foreign, and Project (AEC facilities) categories as well as the total figures for each isotope.

Previous reports in this series are TID-21620 (FY 1964), ORNL-IIC-6 (FY 1965), ORNL-IIC-9 (FY 1966), ORNL-IIC-13 (FY 1967), ORNL-IIC-17 (FY 1968), ORNL-IIC-27 (FY 1969), ORNL-IIC-32 (FY 1970), ORNL-IIC-38 (FY 1971) and BNWL-1744 (FY 1972). Similar reports covering stable isotope distribution have also been prepared (ORNL-TM-4480), "Stable Isotope Customer List and Summary of Shipments, FY 1973," and (MLM-2097), "Stable Isotope Sales: Mound Laboratory Customer and Shipment Summaries, FY 1973."

(a) To differentiate among the suppliers, the isotopes are followed by a letter designating the site from which the isotope was purchased (see Nomenclature, Part 11). All entries for Argonne, United Nuclear and Idaho are either reactor service irradiations, cyclotron service irradiations, or both, with no processed isotopes being sold, while the entries for Savannah River represent material for resale and loans.

■ - ALPHABETICAL LIST OF CUSTOMERS, WITH ISOTOPES
PURCHASED AND RESPECTIVE SUPPLIERS

A. DOMESTIC

1 Advanced Technology Center, Inc.
P.O. Box 6144
Dallas, TX 75222
 $^{252}\text{Cf}(\text{S})$, $^{129}\text{I}(0)$

2 Aerojet: Nuclear Company
550 Second St.
P.O. Box 1845
Idaho Falls, ID 83401
 $^{140}\text{Ba}(0)$, $^{254}\text{Es}(0)$, $^{152+154}\text{Eu}(0)$,
 $^{56}(0)$, $^{115}\text{In}(\text{H})$, $^{95}\text{Nb}(0)$, $^{237}\text{Np}(\text{H})$,
 $^{236}\text{Pu}(0)$, $^{103}\text{Ru}(0)$, $^{151}\text{Sm}(0)$, $^{133}\text{Xe}(0)$,
 $^{95}\text{Zr}(0)$

3 Aerojet. Solid Propulsion Co.
P.O. Box 13400
Sacramento, CA 95813
 $^{252}\text{Cf}(\text{S})$

4 Air Reduction Company
Airco Industrial Gases Division
Union Landing and River Roads
Riverton, NJ 08077
 $^{85}\text{Kr}(0)$

5 Airco, Inc.
Central Research Laboratories
Murray Hill, NJ 07974
 $^{133}\text{Xe}(0)$

6 Alabama, University of
Medical Center
1919 Seventh Ave. South
Birmingham, AL 35486
 $^{133}\text{Xe}(0)$

7 Alabama, University of
College of Engineering
Loyde Hall
University, AL 35486
 $^{252}\text{Cf}(\text{S})$

8 Allen-Bradley Company
136 W. Greenfield Ave.
Milwaukee, WI 53204
 $^{85}\text{Kr}(0)$

9 American Atomics Corporation
425 South Plumer
Tucson, AZ 85719
 $^{85}\text{Kr}(0)$

10 American Oncologic Hospital
Central and Shelmire Ave.
Fox Chase
Philadelphia, PA 19111
 $^{252}\text{Cf}(\text{S})$

11 American Science and Engineering, Inc.
Cambridge, MA 02138
 $^{67}\text{Ga}(0)$, $^{252}\text{Cf}(\text{S})$, MCP(0)

12 Amersham-Searle Corporation
Arlington Heights, IL 60005
 $^{241}\text{Am}(0)$, $^{238}\text{Pu}(0)$

13 Argonne Cancer Research Hospital
950 East 59th St.
Chicago, IL 60637
 $^{60}\text{Co}(\text{I})$

14 Argonne National Laboratory
P.O. Box 2528
Idaho Falls, ID 83407
 $^{10}\text{B}(\text{H})$, $^{90}\text{Sr}(\text{H})$, $^{90}\text{Y}(\text{H})$, RSI(B)

15 Argonne National Laboratory
9700 South Cass Ave.
Argonne, IL 60439
 $^{243}\text{Am}(0)$, $^{144}\text{Ce}(0)$, $^{252}\text{Cf}(0)$, $^{244}\text{Cm}(0)$,
 $^{245}\text{Cm}(0)$, $^{246}\text{Cm}(0)$, $^{253}\text{Es}(0)$, $^{254}\text{Es}(0)$,
 $^{152+154}\text{Eu}(0)$, $^{181}\text{Hf}(0)$, $^{129}\text{I}(0)$, MCP(0),
 $^{237}\text{Np}(\text{H})$, $^{37}\text{Np}(0)$, $^{143}\text{Pr}(0)$, $^{236}\text{Pu}(0)$,
 $^{239}\text{Pu}(0)$, $^{242}\text{Pu}(0)$, $^{106}\text{Ru}(0)$, $^{89}\text{Sr}(0)$,
 $^{230}\text{Th}(0)$, $^{233}\text{U}(0)$, $^{234}\text{U}(0)$, $^{235}\text{U}(0)$,
 $^{236}\text{U}(0)$, $^{238}\text{U}(0)$, $^{133}\text{Xe}(0)$, $^{91}\text{Y}(0)$,
 $^{95}\text{Zr}(0)$, $^{170}\text{TM}(\text{I})$, RSI(B)

16 Argonne National Laboratory
EBWR II Site, National Reactor
Test Station, Central Facilities
Warehouse, Scoville, ID
 $^{90}\text{Sr}(\text{P})$

17 Arizona State University
Tempe, AZ 85281
 $^{134}\text{Cs}(\text{I})$, $^{85}\text{Kr}(0)$

18 Armed Forces Radiobiology
Research Institute
Bethesda, MD 20014
 $^{60}\text{Co}(\text{B})$

19 Atlantic Richfield Hanford Company
P.O. Box 250
Richland, WA 99352
 $^{110}\text{Ag}(\text{H})$, $^{140}\text{BaLa}(\text{H})$, $^{45}\text{Ca}(\text{H})$,
 $^{139}\text{Ce}(\text{H})$, $^{141}\text{Ce}(\text{H})$, $^{144}\text{CePr}(\text{H})$, $^{60}\text{Co}(\text{H})$,
 $^{134}\text{Cs}(\text{H})$, $^{137}\text{Cs}(\text{H})$, $^{152}\text{Eu}(\text{H})$, $^{154}\text{Eu}(\text{H})$,
 $^{155}\text{Eu}(\text{H})$, $^{59}\text{Fe}(\text{H})$, $^{3}\text{H}(\text{H})$, $^{203}\text{Hg}(\text{H})$,
 $^{131}\text{I}(\text{H})$, $^{22}\text{Na}(\text{H})$, $^{95}\text{Nb}(\text{H})$, $^{239}\text{Np}(\text{H})$,
 $^{147}\text{Pm}(\text{H})$, $^{210}\text{Po}(\text{H})$, $^{239}\text{Pu}(\text{H})$, $^{85}\text{Rb}(\text{H})$,
 $^{103}\text{Ru}(\text{H})$, $^{106}\text{Ru}(\text{H})$, $^{35}\text{S}(\text{H})$, $^{124}\text{Sb}(\text{H})$,
 $^{125}\text{Sb}(\text{H})$, $^{46}\text{Sc}(\text{H})$, $^{85}\text{Sr}(\text{H})$, $^{85}\text{Sr}(\text{H})$,
 $^{89}\text{Sr}(\text{H})$, $^{185}\text{W}(\text{H})$, $^{88}\text{Y}(\text{H})$, $^{90}\text{Y}(\text{H})$,
 $^{91}\text{Y}(\text{H})$, $^{95}\text{Zr}(\text{H})$

20 Atomics International, Division of
North American Rockwell Corporation
P.O. Box 309
Canoga Park, CA 91304
 $^{10}\text{B}(\text{H})$

21 Automation Industries, Inc.
Instruments Division
Rt. 113
Kimberson Rd.
Phoenixville, PA 19469
 $^{192}\text{Ir}(\text{H})$

22 Augsburg College
Minneapolis, MN 55404
 $^{252}\text{Cf}(\text{S})$

23 Babcock Electronics Corporation
P.O. Box 1499
Costa Mesa, CA 92626
 $^{85}\text{Kr}(\text{O})$

24 Barnes Engineering Company
Stamford, CT 06904
 $^{U}(\text{S})$

25 Battelle Memorial Institute
Columbus Laboratory
505 King Ave.
Columbus, OH 43201
 $^{252}\text{Cf}(\text{S})$, $^{238}\text{Pu}(\text{O})$

26 Battelle Pacific Northwest Laboratories
P.O. Box 999
Richland, WA 99352
 $^{241}\text{Am}(\text{H})$, $^{243}\text{Am}(\text{O})$, $^{140}\text{Ba}(\text{O})$, $^{14}\text{C}(\text{H})$,
 $^{252}\text{Cf}(\text{S})$, $^{244}\text{Cm}(\text{O})$, $^{137}\text{Cs}(\text{H})$,
 $^{CS}(\text{O})$, $^{3}\text{H}(\text{H})$, $^{131}\text{I}(\text{H})$, $^{131}\text{I}(\text{O})$,
 $^{85}\text{Kr}(\text{O})$, $^{95}\text{Nb}(\text{H})$, $^{237}\text{Nd}(\text{H})$, $^{239}\text{Np}(\text{H})$,
 $^{143}\text{Pm}(\text{H})$, $^{210}\text{Po}(\text{H})$, $^{144}\text{Pr}(\text{H})$, $^{239}\text{Pu}(\text{H})$,
 $^{238}\text{Pu}(\text{O})$, $^{103}\text{Ru}(\text{O})$, $^{145}\text{Sm}(\text{H})$, $^{90}\text{Sr}(\text{H})$,
 $^{SS}(\text{O})$, $^{90}\text{Y}(\text{H})$, $^{65}\text{Zn}(\text{H})$, $^{Zr}(\text{H})$, $^{95}\text{Zr}(\text{O})$,
 $^{DU}(\text{O})$, $^{EU}(\text{O})$, $^{NU}(\text{O})$

27 Bell Telephone Laboratories
Murray Hill, NJ 07971
 $MCP(\text{O})$, $SS(\text{O})$

28 Biochemical and Nuclear Corporation
(Norchem Division)
P.O. Box 749
Burbank, CA 91503
 $^{3}\text{H}(\text{O})$

29 Boston University
100 Cummington St.
Boston, MA 02215
 $^{89}\text{Sr}(\text{O})$

30 Bowman Gray School of Medicine
Winston-Salem, NC 27103
 $^{47}\text{Ca}(\text{O})$, $FPSS(\text{O})$, $^{3}\text{H}(\text{O})$, $MCP(\text{O})$,
 $^{238}\text{Pu}(\text{O})$, $^{103}\text{Ru}(\text{O})$, $^{99}\text{Tc}(\text{O})$, $Tgs(\text{O})$,
 $^{95}\text{Zr}(\text{O})$

31 Brookhaven National Laboratory
Associated Universities, Inc.
Upton, NY 11973
 $^{47}\text{Ca}(\text{O})$, $^{252}\text{Cf}(\text{S})$, $FPSS(\text{O})$, $^{3}\text{H}(\text{O})$,
 $MCP(\text{O})$, $^{103}\text{Ru}(\text{O})$, $Tgs(\text{O})$, ^{99}Tc , $^{95}\text{Zr}(\text{O})$

32 Burroughs Corporation
460 Sierra Madre Villa
Pasadena, CA 91109
 $^{85}\text{Kr}(\text{O})$

33 California, University of
Los Angeles
650 Circle Drive South
Los Angeles, CA 90405
 $^{28}\text{Mg}(\text{B})$

34 California Institute of Technology
1201 E. California Blvd.
Pasadena, CA 91109
 $^{252}\text{Cf}(\text{S})$, $^{235}\text{U}(\text{O})$, $^{238}\text{U}(\text{O})$

35 California State College
5151 State College Dr.
Los Angeles, CA 90032
 $^{252}\text{Cf}(\text{S})$

36 California State College
18111 Nordhoff St.
Northridge, CA 91324
 $^{252}\text{Cf}(\text{S})$

37 California, University of
400 Sproul Hall
Berkeley, CA 94720

 $^{131}\text{I}(0)$

38 California, University of
Lawrence Berkeley Laboratory
Berkeley, CA 94701

 $^{257}\text{Fm}(0)$

39 California, University of
P.O. Box CA
Irvine, CA 92664

 $^{252}\text{Cf}(S)$

40 California, University of
Lawrence Livermore Laboratory
7000 East Ave.
Livermore, CA 94550

 $^{3}\text{H}(0)$, $^{85}\text{Kr}(0)$, MCP(0), $^{237}\text{Np}(0)$,
 $^{238}\text{Pu}(0)$, SS(0), Tgs(0), U(0), $^{235}\text{U}(0)$,
 $^{236}\text{U}(0)$

41 California, University of
Los Alamos Scientific Laboratory
P.O. Box 990
Los Alamos, NM 87544

 $^{238}\text{Pu}(S)$

42 California, University of
Los Alamos Scientific Laboratory
P.O. Box 1663
Los Alamos, NM 87544

 $^{144}\text{Ce}(0)$, $^{252}\text{Cf}(0)$, $^{257}\text{Fm}(0)$, $^{85}\text{Kr}(0)$,
 $^{106}\text{Ru}(0)$, $^{235}\text{U}(0)$, $^{236}\text{U}(0)$, $^{238}\text{U}(0)$,
 $^{238}\text{Pu}(M)$, Th(M)

43 California, University of
405 Hilgard Ave.
Los Angeles, CA 90024

 $^{153}\text{Gd}(0)$, $^{133}\text{Xe}(0)$

44 California, University of
San Francisco Medical Center
San Francisco, CA 94122

MCP(0)

45 California, University of
School of Medicine
San Francisco, CA 94122

 $^{252}\text{Cf}(S)$

46 Carnegie-Mellon University
500 Forbes
Pittsburgh, PA 15213

 $^{232}\text{Cf}(S)$

47 Chevron Research Company
555 Market St.
San Francisco, CA 94120

 $^{3}\text{H}(0)$, $^{85}\text{Kr}(0)$, $^{95}\text{Zr}(0)$

48 Chicago, University of
1160 East 55th St.
Chicago, IL 60615

 $^{67}\text{Cu}(0)$, $^{106}\text{Ru}(0)$, $^{89}\text{Sr}(0)$

49 Children's Medical Center
300 Longwood Ave.
Boston, MA 02115

 $^{103}\text{Ru}(0)$

50 Cincinnati General Hospital,
University of
234 Goodman St.
Cincinnati, OH 45202

 $^{85}\text{Rb}(8)$, $^{123}\text{I}(B)$

51 Cincinnati, University of
Cincinnati, OH 45221

 $^{252}\text{Cf}(0)$, $^{252}\text{Cf}(S)$, $^{67}\text{Ga}(0)$, $^{129}\text{I}(0)$

52 Clark University
Worcester, MA 01610

 ^{192}Ir

53 Cleveland Metropolitan General Hospital
3395 Scranton Rd.
Cleveland, OH 44109

 $^{131}\text{I}(0)$

54 Cleveland State University
1983 East 24th St.
Cleveland, OH 44115

MCP(0)

55 Cleveland University Hospital
University Circle
Cleveland, OH 44106

 $^{43}\text{K}(0)$

56 Colorado State University
Fort Collins, CO 80521

 $^{85}\text{Kr}(0)$, $^{237}\text{Np}(0)$

57 Colorado, University of
4200 E. Ninth Ave.
Denver, CO 80220

 $^{133}\text{Xe}(0)$

58 Columbia Scientific Industries
3625 Bluestein Blvd.
Austin, TX 78702
 $^{252}\text{Cf}(\text{S})$

59 Columbia University
Box 6, Low Library
New York, NY 10027
 $^{252}\text{Cf}(\text{S})$, $^{140}\text{Ba}(\text{O})$, $^{90}\text{Sr}(\text{O})$

60 Columbia University
College of Physicians and Surgeons
168th St.
New York, NY 10027
 $\text{Mg}(\text{O})$

61 Continental Oil
P.O. Box 2197
Houston, TX 77001
 $^3\text{H}(\text{O})$

62 Cook County Hospital
1903 W. Harrison Street
Chicago 12, IL 60612
 $^{47}\text{Ca}(\text{O})$

63 Cornell University
Ithaca, NY 14850
 $^{252}\text{Cf}(\text{O})$, $^{28}\text{Mg}(\text{B})$

64 Cryogenic Rare Gas Laboratories, Inc.
730 S. 13th St.
Newark, NJ 07103
 $^3\text{H}(\text{O})$, $^{85}\text{Kr}(\text{O})$

65 Cyclotron Corporation
950 Gilman St.
Berkeley, CA 94710
 $^3\text{H}(\text{O})$

66 Diagnostic Isotopes
123 Pleasant Ave.
Upper Saddle River, NJ 07458
 $^{67}\text{Ga}(\text{O})$

67 Dow Chemical Company
Rocky Flats Division
P.O. Box 888
Golden, CO 80401
 $\text{Am}(\text{S})$, $^{241}\text{Am}(\text{O})$, $\text{Cm}(\text{S})$, $^{238}\text{Pu}(\text{O})$,
 $^{242}\text{Pu}(\text{O})$, $^{242}\text{Pu}(\text{S})$

68 Du Page, College of
Business Office
Lambert Road and 22nd St.
Glen Ellyn, IL 60137
 $^{239}\text{Pu}(\text{M})$

69 Du Pont de Nemours and Company, E. I.
Savannah River Plant
Aiken, SC 29801
 $^{252}\text{Cf}(\text{S})$, $^{252}\text{Cf}(\text{O})$, $^{244}\text{Cm}(\text{O})$, $^{248}\text{Cm}(\text{O})$,
 $^{253}\text{Es}(\text{O})$, $^{103}\text{Ru}(\text{O})$, $^{106}\text{Ru}(\text{O})$, $\text{Tgs}(\text{O})$,
 $^{90}\text{Y}(\text{O})$, $\text{Pu}(\text{U})$

70 Duke University
Durham, NC 27706
 $^3\text{H}(\text{O})$, $^{133}\text{Xe}(\text{O})$

71 Eastern Michigan University
Ypsilanti, MI 48197
 $^{252}\text{Cf}(\text{S})$

72 Eastern New Mexico University
Portales, NM 88130
 $^{252}\text{Cf}(\text{S})$

73 Eastman Kodak Company
Kodak Park Works
Rochester, NY 14650
 $^{252}\text{Cf}(\text{S})$

74 Eberline Instrument Corporation
Post Office Box 279
Santa Fe, NM 87501
 $^{140}\text{Ba}(\text{O})$, $^{236}\text{Pu}(\text{O})$

75 Edgerton, Germeshausen and Grier
95 Brookline Ave.
Boston, MA 02215
 $^{252}\text{Cf}(\text{S})$

76 Edgerton, Germeshausen and Grier
P.O. Box 98
Goleta, CA 93017
 $^{252}\text{Cf}(\text{S})$

77 Environmental Protection Agency
Division of Financial Management
Accounting Operations Office
Washington, D.C. 20460
 $^{85}\text{Kr}(\text{O})$

78 Fairchild Semiconductors
P.O. Box 790
Mountain View, CA 94040
 $^{85}\text{Kr}(\text{O})$

79 Fairchild Semiconductors
333 Western Ave.
So. Portland, MA 04106
 $^{85}\text{Kr}(0)$

80 Fairchild Semiconductors
P.O. Box 908
Shiprock, NM 87420
 $^{85}\text{Kr}(0)$

81 Florida State University
Tallahassee, FL 32306
 $^{67}\text{Ga}(0)$

82 Florida, University of
Gainesville, FL 32601
 $^{252}\text{Cf}(0)$, $^{244}\text{Cm}(0)$

83 Gamma Industries, Inc.
P.O. Box 2543
Baton Rouge, LA 70821
 $^{252}\text{Cf}(S)$, $^{137}\text{Cs}(0)$, FPSS(0), MCP(0)

84 Gamma Industries
9320 Travenor
P.O. Box 34526
Houston, TX 77034
 $^{241}\text{Am}(0)$, $^{137}\text{Cs}(0)$, MCP(0), $^{95}\text{Nb}(0)$,
 $^{89}\text{Sr}(0)$

85 General Electric Company
21800 Tungsten Rd.
Cleveland, OH 44117
 $^{3}\text{H}(0)$, $^{85}\text{Kr}(0)$

86 General Electric Company
Pyrotechnic Installation Bldg.
John F. Kennedy Space Center
Florida 32815
 $^{238}\text{Pu}(M)$

87 General Electric Company
Vallecitos Nuclear Center
P.O. Box 846, Vallecitos Rd.
Pleasanton, CA 94566
 $^{252}\text{Cf}(S)$, $^{238}\text{Pu}(M)$

88 General Electric Company
P.O. Box 254
San Jose, CA 95103
 $^{241}\text{Am}(0)$, $^{252}\text{Cf}(0)$, $^{137}\text{Cs}(0)$, $^{237}\text{Np}(0)$,
 $^{235}\text{U}(0)$, $^{238}\text{U}(0)$, $^{133}\text{Xe}(0)$

89 General Electric Company
General Electric Dr.
Waynesboro, VA 22980
 $^{85}\text{Kr}(0)$

90 General Electric Research &
Development Center
Bldg K-1, Box 8
Schenectady, NY 12301
RSI(B)

91 General Motors Corporation
Frigidaire Division
Dayton, OH 45501

92 General Nucleonics Division,
Tyco Laboratories
2811 Metropolitan Place
Pomona, CA 91767
 $^{85}\text{Kr}(0)$

93 General Radioisotope Processing Company
A Division of General Nuclear, Inc.
3120 Crow Canyon Road
San Ramon, CA 94583
 $^{241}\text{Am}(0)$, $^{137}\text{Cs}(0)$, $^{152+154}\text{Eu}(0)$,
MCP(0), $^{106}\text{Ru}(0)$, $^{89}\text{Sr}(0)$, $^{95}\text{Zr}(0)$

94 George Washington University
Washington, DC 20006
 $^{67}\text{Cu}(0)$

95 Georgetown University
3800 Reservoir Rd. N.W.
Washington, DC 20007
 $^{133}\text{Xe}(0)$

96 Georgia Institute of Technology
225 N. Ave, NW
Atlanta, GA 30332
 $^{243}\text{Am}(0)$, $^{252}\text{Cf}(S)$, $^{60}\text{Co}(B)$, $^{85}\text{Kr}(0)$,
 $^{147}\text{Pm}(0)$, $^{106}\text{Ru}(0)$

97 Georgia, University of
Athens, GA 30601
 $^{252}\text{Cf}(S)$, $^{89}\text{Sr}(0)$

98 Gollob Analytical Service Corporation
47 Industrial Road
Berkeley Heights, NJ 07922
 $^{85}\text{Kr}(0)$

99 Gulf Energy and Environmental Systems
P.O. Box 608
San Diego, CA 92112
 $^{137}\text{Cs}(0)$, $\text{NU}(0)$, $^{238}\text{Pu}(0)$, $^{232}\text{Th}(0)$,
 $^{233}\text{U}(0)$

100 Gulf Research and Development Co.
P.O. Box 2038
Pittsburgh, PA 15230
 $^{252}\text{Cf}(S)$

101 Harvard University
Cambridge, MA 02138
 $^{252}\text{Cf}(S)$, $^{43}\text{K}(0)$

102 Hazen Research Inc.
4601 Indiana St.
Golden, CO 80401
 $^{230}\text{Th}(0)$

103 Hazelton Laboratories, Inc.
9200 Leesburg Pike
Vienna, VA 22180
 $^{89}\text{Sr}(0)$

104 Health and Safety Laboratory
USAEC New York Operations Office
376 Hudson St.
New York, NY 10014
 $^{252}\text{Cf}(S)$

105 Hughes Aircraft Company
P.O. Box 92907
Los Angeles, CA 90009
 $^{85}\text{Kr}(0)$

106 ICI America, Inc.
Atlas Aerospace Division
Valley Forge Industrial Park
Valley Forge, PA 19481
 $^{85}\text{Kr}(0)$

107 ICN-NBCo
26201 Miles Road
Cleveland, OH 44128
 $^{241}\text{Am}(0)$, $^{144}\text{Ce}(0)$, $^{137}\text{Cs}(0)$, $\text{CSI}(0)$,
 $^{3}\text{H}(0)$, $^{85}\text{Kr}(0)$, $^{33}\text{P}(0)$, $^{106}\text{Ru}(0)$,
 $^{151}\text{Sm}(0)$, $^{90}\text{Sr}(0)$, $\text{Tgs}(0)$

108 Illinois, University of
203 Administration Building E
Urbana, IL 61803
 $^{47}\text{Ca}(0)$, $^{129}\text{I}(0)$, $^{106}\text{Ru}(0)$

109 Industrial Nucleonics Corporation
650 Ackerman Road
Columbus, OH 43202
 $^{85}\text{Kr}(0)$

110 Interex Corporation
66 Woerd Ave.
Waltham, MA 02154
 $^{85}\text{Kr}(0)$

111 International Copper Research
Association, Inc.
825 Third Ave.
New York, NY 10022
 $^{67}\text{Cu}(0)$

112 International Nutronics, Inc.
Los Altos, CA 94022
 $^{252}\text{Cf}(S)$

113 Intetcom. Rad. Tech.
P.O. Box 20817
San Diego, CA 92138
 $^{252}\text{Cf}(S)$

114 Isotope Products Laboratories
404 South Luke St.
Burbank, CA 91502
 $^{244}\text{Cm}(0)$, $^{85}\text{Kr}(0)$, $^{147}\text{Pm}(0)$, $^{241}\text{Pu}(0)$,
 $^{89}\text{Sr}(0)$, $^{235}\text{U}(0)$

115 Isovac Engineering Company
6220 San Fernando Rd.
Glendale, CA 91204
 $^{85}\text{Kr}(0)$

116 Itabira International Company, Ltd.
640 Fifth Avenue, 18th Floor
New York, NY 10019
 $^{67}\text{Ga}(0)$

117 ITT Semiconductors, A Division of
Int'l Telephone and Telegraph
3301 Electronics Way
W. Palm Beach, FL 33407
 $^{85}\text{Kr}(0)$

118 Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA 91103
 $^{238}\text{Pu}(M)$

119 Johns Hopkins Medical School
Baltimore, MD 21218
 $\text{MCP}(0)$, $^{106}\text{Ru}(0)$

120 Kansas State University
Manhattan, KS 66502
 $^{252}\text{Cf}(\text{S})$, $^{235}\text{U}(\text{O})$

121 Kansas, University of
Medical Center
Kansas City, KS 66103
 $^{89}\text{Sr}(\text{O})$, $^{133}\text{Xe}(\text{O})$

122 Kentucky, University of
Lexington, KY 40506
 $^3\text{H}(\text{O})$, $^{133}\text{Xe}(\text{O})$

123 Kerr-McGee Corporation
Kerr-McGee Bldg.
Oklahoma City, OK 73102
 $^{252}\text{Cf}(\text{S})$, $^{242}\text{Pu}(\text{O})$, $^{233}\text{U}(\text{O})$

124 KMS Fusion, Inc.
3941 S. Research Park Dr.
P.O. Box 1567
Ann Arbor, MI 48106
 $^3\text{H}(\text{O})$

125 Knolls Atomic Power Laboratory
P.O. Box 1072
Schenectady, NY 12301
 $^{252}\text{Cf}(\text{O})$, $^{151}\text{Sm}(\text{O})$

126 Lawrence Radiation Laboratory
Bldg 75, Room 108
Berkeley, CA 94701
RSI(B)

127 LFE, Environmental Laboratory Division
2030 Wright Avenue
Richmond, CA 94804
 $^{236}\text{Pu}(\text{O})$, $^{242}\text{Pu}(\text{O})$

128 Lockheed Aircraft Corporation
P.O. Box 504
Missiles and Space
Sunnyvale, CA 94088
 $^3\text{H}(\text{O})$

129 Lockheed Electronics Company
16811 El Camino Real
Houston, TX 77058
 $^{140}\text{Ba}(\text{O})$

130 Loma Linda University Hospital
Loma Linda, CA 92354
 $^{133}\text{Xe}(\text{O})$

131 Long Island Jewish Hospital
270-05 76th St.
New Hyde Park, NY 11040
 $^{137}\text{Cs}(\text{B})$

132 Louisiana State University
Department of Physics and Astronomy
Baton Rouge, LA 70803
 $^{252}\text{Cf}(\text{S})$, CSI(A)

133 Lovelace Clinic
4800 Gibson Blvd. S.E.
Albuquerque, NM 87108
 $^{144}\text{Ce}(\text{O})$, $^{252}\text{Cf}(\text{O})$, $^{137}\text{Cs}(\text{O})$, $^{147}\text{Pm}(\text{O})$,
 $^{238}\text{Pu}(\text{O})$, $^{239}\text{Pu}(\text{O})$, $^{91}\text{Y}(\text{O})$

134 Lowell Technological Institute
One Textile Ave.
Lowell, MA 01845
 $^{252}\text{Cf}(\text{O})$, $^{252}\text{Cf}(\text{S})$

135 Mallinckrodt Chemical Works
3600 N. Second St.
St. Louis, MO 63160
 $^3\text{H}(\text{O})$, $^{99}\text{Tc}(\text{O})$

136 Maryland, University of
College Park, MD 20742
 $^{252}\text{Cf}(\text{O})$, FPSS(O), $^{129}\text{I}(\text{O})$, RSI(O),
SS(O), RSI(A)

137 Mason and Hanger
Salas Mason Company, Inc.
Pantex Plant
P.O. Box 647
Amarillo, TX 79105
 $^{236}\text{Pu}(\text{O})$

138 Massachusetts General Hospital
Isotope Laboratory
Boston, MA 02114
 $^{47}\text{Ca}(\text{O})$

139 Massachusetts Institute of Technology
Box 69
Cambridge, MA 02139
 $^{232}\text{Th}(\text{O})$, $^{238}\text{U}(\text{O})$

140 Massachusetts, University of
Amherst, MA 01002
 $^{252}\text{Cf}(\text{S})$

141 Mayo Foundation
Rochester, MN 55901
 $^{67}\text{Cu}(\text{O})$

142 McDonnell Douglas Astronautics Company
Western Division
5301 Bolsa Ave.
Huntington Beach, CA 92647
 $\text{FPSS}(0)$, $\text{^{147}Pm}(0)$

143 Measurex Corporation
10475 Imperial Ave.
Cupertino, CA 95014
 $\text{^{85}Kr}(0)$

144 Medical College of Georgia
Talmadge Memorial Hospital
Augusta, GA 30902
 $\text{^{257}Fm}(0)$, $\text{^{85}Kr}(0)$

145 Medical Systems Laboratory
c/o Astro-Nuclear + Medical Labs, Inc.
19201 S. Vermont Ave.
Torrance, CA 90502
 $\text{^3H}(0)$

146 Merck and Company
Rahway, NJ 07065
 $\text{^{60}Co}(0)$

147 Methodist Hospital
6720 Bertner
Houston, TX 77025
 $\text{^{133}Xe}(0)$

148 Metropolitan Dade County
Court House, Flager Street
Miami, FL 33131
 $\text{^{67}Ga}(0)$, $\text{^{111}In}(0)$

149 Meyer Line
Brooklyn, NY 11201
 $\text{Th}(S)$, $\text{U}(S)$

150 Michigan State University
East Lansing, MI 48823
 $\text{MCP}(0)$

151 Michigan, University of
Ann Arbor, MI 48104
 $\text{^{239}Pu}(0)$

152 Midlands Technical Education Center
316 Beltline Blvd.
Columbia, SC 29250
 $\text{^{252}Cf}(S)$

153 Minnesota Mining and Manufacturing Co.
P.O. Box 3121
St. Paul, MI 55101
 $\text{^{137}Cs}(0)$, $\text{^{85}Kr}(0)$, $\text{MCP}(0)$, $\text{^{95}Nb}(0)$,
 $\text{^{147}Pm}(0)$, $\text{^{238}Pu}(0)$, $\text{^{99}Tc}(0)$

154 Minnesota, University of
402 Morrill Hall
Minneapolis, MI 55455
 $\text{^{252}Cf}(S)$

155 Mississippi State University
Box 307
State College, MS 39762
 $\text{^{252}Cf}(S)$

156 Mississippi, University of
Jackson, MS 39205
 $\text{^{43}K}(0)$, $\text{^{85}Kr}(0)$, $\text{MCP}(0)$

157 Missouri, University of
General Service Bldg.
Rolla, MO 65401
 $\text{^{252}Cf}(S)$

158 Monsanto Company
P.O. Box 1311
Texas City, TX 77591
 $\text{^3H}(0)$, $\text{^{133}Xe}(0)$

159 Monsanto Research Corporation
Dayton Laboratory
1515 Nicholas Rd.
Dayton, OH 45407
 $\text{^{241}Am}(0)$, $\text{^{237}Np}(0)$, $\text{^{238}Pu}(0)$

160 Monsanto Research Corporation
Nuclear Products Dept.
Station B, Box 8
Dayton, OH 45407
 $\text{^{252}Cf}(S)$, Pu(AR) , $\text{^{238}Pu}(P)$

161 Monsanto Research Corporation
Mound Laboratory
P.O. Box 32
Miamisburg, OH 45342
 $\text{MCP}(0)$, $\text{NU}(0)$, $\text{^{238}Pu}(S)$, $\text{Pu}(U)$

162 National Accelerator Laboratory
P.O. Box 500
Batavia, IL 60510
 $\text{^{106}Ru}(0)$

163 National Bureau of Standards
Connecticut Ave. And Van Ness St. N.W.
Washington, D.C. 20234
 $^{37}\text{Ar}(0)$, $^{252}\text{Cf}(S)$, $^{129}\text{I}(0)$, $^{133}\text{Xe}(0)$

164 National Bureau of Standards
Connecticut Ave. and Van Ness St. N.W.
Washington, D.C. 20234
 $^{37}\text{Ar}(0)$, $^{252}\text{Cf}(0)$, $^{129}\text{I}(0)$, $^{239}\text{Pu}(0)$,
 $^{229}\text{Th}(0)$, $^{235}\text{U}(0)$, $^{133}\text{Xe}(0)$

165 National Lead Company
Fernald, OH
 $\text{Th}(S)$, $\text{U}(S)$

166 National Semiconductor Corporation
2900 Semiconductor Dr.
Santa Clara, CA 95051
 $^{85}\text{Kr}(0)$

167 New England Nuclear Corporation
575 Albany St.
Boston, MA 02118
 $^{241}\text{Am}(0)$, $^{137}\text{Cs}(0)$, $\text{CSI}(0)$, $^{153}\text{Gd}(0)$,
 $^{3}\text{H}(0)$, $^{129}\text{I}(0)$, $^{85}\text{Kr}(0)$, $\text{MCP}(0)$, $^{33}\text{P}(0)$,
 $^{103}\text{Ru}(0)$, $^{106}\text{Ru}(0)$, $^{151}\text{Sm}(0)$, $^{89}\text{Sr}(0)$,
 $^{90}\text{Sr}(0)$, $^{99}\text{Tc}(0)$

168 New Hampshire, University of
Parsons Hall
Durham, NH 03824
 $\text{RSI}(B)$, $^{235}\text{U}(0)$

169 New Jersey, College of Medicine and
Dentistry
100 Bergen St.
Newark, NJ 07103
 $^{85}\text{Kr}(0)$

170 New Mexico, University of
Albuquerque, NM 87103
 $^{133}\text{Xe}(0)$

171 New York, State University of
3534 Main St.
Buffalo, NY 14214
 $^{233}\text{U}(0)$, $\text{RSI}(0)$

172 New York State, University of
Department of Earth & Space Science
Stony Brook, NY 11790
 $\text{RSI}(B)$

173 New York, State University of
Upstate Medical Center
766 Irving Ave.
Syracuse, NY 13210
 $^{203}\text{Pb}(0)$, $^{133}\text{Xe}(0)$

174 North Carolina, University of
Chapel Hill, NC 27514
 $\text{FPSS}(0)$

175 Northern Illinois University
1425 W. Lincoln Highway
DeKalb, IL 60115
 $\text{CSI}(A)$

176 Nuclear Dynamics
2614 Seaman Ave.
El Monte, CA 91733
 $^{3}\text{H}(0)$

177 Nuclear Environmental Engineering, Inc.
P.O. Box 58866
Houston, TX 77058
 $^{241}\text{Am}(0)$, $^{3}\text{H}(0)$

178 Nuclear Materials and Equipment Corp.
609 Warren Ave.
Apollo, PA 15613
 $^{241}\text{Am}(0)$, $^{238}\text{Pu}(0)$, $^{106}\text{Ru}(0)$, $\text{Pu}(R)$

179 Nuclear Radiation Developments, Inc.
2937 Alt Blvd., North
Grand Island, NY 14072
 $^{241}\text{Am}(0)$, $^{210}\text{Po}(M)$

180 Nuclear Research Corporation
Street Rd. and Second St. Pike
Southhampton, PA 18966
 $^{239}\text{Pu}(S)$, $^{106}\text{Ru}(0)$

181 Nuclear Sources and Services
P.O. Box 14023
Houston, TX 77021
 $^{152+154}\text{Eu}(0)$, $^{3}\text{H}(0)$, $^{85}\text{Kr}(0)$, $^{147}\text{Pm}(0)$

182 Oak Ridge Associated Universities
P.O. Box 117
Oak Ridge, TN 37830
 $^{253}\text{Es}(0)$, $^{67}\text{Ga}(0)$, $^{153}\text{Gd}(0)$, $\text{MCP}(0)$,
 $^{147}\text{Nd}(0)$, $^{203}\text{Pb}(0)$

183 Oak Ridge National Laboratory
Isotope Division
Oak Ridge, TN 37830
 $^{252}\text{Cf}(S)$, $^{137}\text{Cs}(B)$, $^{90}\text{Sr}(B)$

184 Oak Ridge National Laboratory
Oak Ridge, TN 37830
 $^{252}\text{Cf}(\text{S})$, $^{238}\text{Pu}(\text{S})$

185 Oak Ridge National Laboratory
Isotope Sales Dept.
Oak Ridge, TN 37830
 $^{252}\text{Cf}(\text{O})$

186 Oak Ridge Technical Enterprises Corp.
102 Midland Road
Oak Ridge, TN 37830
 $^{129}\text{I}(\text{O})$

187 Oberlin College
Oberlin, OH 44074
 $^{89}\text{Sr}(\text{O})$

188 Ohio State University
190 North Oval Dr.
Columbus, OH 43210
 $^{252}\text{Cf}(\text{S})$, MCP(O) RSI(B)

189 Ohio State University
Research Foundation
1314 Kinnear Rd.
Columbus, OH 43212
 $^{181}\text{Hf}(\text{O})$, $^{89}\text{Sr}(\text{O})$

190 Ohio University
Athens, OH 45701
 $^{252}\text{Cf}(\text{S})$, $^3\text{H}(\text{O})$

191 Orange, County of
P.O. Box 564
Room 362, Engineering Bldg.
Santa Ana, CA 92702
 $^{133}\text{Xe}(\text{O})$

192 Oregon Medical School., University of
3181 S.W. Sam Jackson Park Rd.
Portland, OR 97201
 $^{133}\text{Xe}(\text{O})$

193 Oregon State University
Corvallis, OR 97330
 $^{235}\text{U}(\text{O})$, $^{238}\text{U}(\text{O})$

194 Palmdale General Hospital
Palmdale, CA 93550
 $^{133}\text{Xe}(\text{O})$

195 Panametrics, Inc.
221 Crescent St.
Waltham, MA 02154
 $^3\text{H}(\text{O})$, $^{85}\text{Kr}(\text{O})$

196 Parkwell Laboratories, Inc.
429 North High St.
Croton, OH 43013
 $^{241}\text{Am}(\text{O})$, $^{137}\text{Cs}(\text{O})$, $^{238}\text{Pu}(\text{O})$

197 Pennsylvania, Hospital of
the University of
3400 Soryce
Philadelphia, PA 19104
 $^{252}\text{Cf}(\text{S})$

198 Pennsylvania State University
207 Old Main Bldg.
University Park, PA 16802
 $^{252}\text{Cf}(\text{S})$, $^{60}\text{Co}(\text{B})$, $^{129}\text{I}(\text{O})$

199 Pennsylvania, University of
3025 Walnut St.
Philadelphia, PA 19104
 $^{106}\text{Ru}(\text{O})$

200 Penrose Hospital
2215 North Cascade
Colorado Springs, CO 80907
 $^{133}\text{Xe}(\text{O})$

201 Pittsburgh, University of
Pittsburgh, PA 15213
 $^{131}\text{I}(\text{O})$, $^{89}\text{Sr}(\text{O})$, $^{235}\text{U}(\text{O})$, $^{238}\text{U}(\text{O})$

202 Potter and Brumfield
Princeton, IN 47570
 $^{85}\text{Kr}(\text{O})$

203 Princeton University
James Forrestal Campus
Princeton, NJ 08540
 $^{133}\text{Xe}(\text{O})$

204 Purdue University
Pharmacy Annex
Lafayette, IN 47907
CSI(A), $^{181}\text{Hf}(\text{O})$, Nu(O), RSI(A)

205 Radiation Dynamics, Inc.
1800 Shames Dr.
Westberry, NY 11590
 $^{237}\text{Np}(\text{O})$, $^{231}\text{Pa}(\text{M})$, $^3\text{H}(\text{O})$, Tgs(O)

206 Ray Industries, Inc.
403 Howell Way
Edmonds, WA 98020
 $^{203}\text{Pb}(\text{H})$, $^{230}\text{Th}(\text{H})$

207 Reactor Experiments, Inc.
963 Terminal Way
San Carlos, CA 94070
 $^{252}\text{Cf}(\text{S})$, $^{238}\text{U}(\text{O})$

208 Rensselaer Polytechnic Institute
Service Bldg.
Troy, NY 12180
RSI(B)

209 Republic Steel Corporation
221 East 131st St.
Cleveland, OH 44108
 $^{252}\text{Cf}(\text{S})$

210 Resalab
Energy Conversion Department
30 Pershing Rd.
Sunnyvale, CA 94086
 $^{238}\text{Pu}(\text{M})$

211 Reynolds Electric Engineering Company
P.O. Box 14400
Las Vegas, NV 89114
 $^{236}\text{Pu}(\text{O})$

212 Richmond Laboratories, Inc.
P.O. Box 3382
Augusta, GA 30904
 $^{252}\text{Cf}(\text{S})$

213 Rigaku/USA
Lakeside Office Park, Door #16
607 North Ave.
Wakefield, MA 01880
Th(M)

214 Rochester, University of
575 Elmwood Ave.
Rochester, NY 14627
 $^{131}\text{I}(\text{O})$, $^{95}\text{Zr}(\text{O})$

215 Rutgers, The State University
New Brunswick, NJ 08903
 $^{252}\text{Cf}(\text{S})$, $^{89}\text{Sr}(\text{O})$

216 Saint Luke's Presbyterian Medical
Center
1753 West Congress Parkway
Chicago, IL 60612
 $^{18}\text{F}(\text{A})$, $^{52}\text{Fe}(\text{A})$, CSI(A)

217 Saint Vincent's Hospital
2131 W. Third St.
Los Angeles, CA 90057
 $^{133}\text{Xe}(\text{O})$

218 Salk Institute
P.O. Box 1809
San Diego, CA 92112
 $^3\text{H}(\text{O})$

219 Sanders Nuclear Corporation
95 Canal St.
Nashua, NH 03060
 $^{252}\text{Cf}(\text{S})$

220 Sandia Corporation
Sandia Laboratories
Kirtland Air Force Base (East)
Bldg. 869
Albuquerque, NM 87115
 $^{238}\text{Pu}(\text{M})$, $^{232}\text{U}(\text{M})$, Th(M), Du(M)

221 Sam Houston State University
Huntsville, TX 77340
 $^{252}\text{Cf}(\text{S})$

222 Savannah River Plant
E.I. DuPont de Nemours & Co.
Ounbarton, SC
 $^{252}\text{Cf}(\text{B})$

223 Savannah River Laboratory
Aiken, SC 29801
 $^{252}\text{Cf}(\text{S})$

224 Schlumberger Technology Corporation
Old Quarry Rd.
P.O. Box 307
Ridgefield, CT 06877
 $^3\text{H}(\text{O})$

225 Schwarz Bio-Research, Inc.
Mountain View Ave.
Orangeburg, NY 10962
 $^3\text{H}(\text{O})$, $^{33}\text{P}(\text{O})$

226 Scripps Clinic and Research Foundation
476 Prospect St.
La Jolla, CA 92037
 $^{133}\text{Xe}(\text{O})$

227 Self-Powered Lighting, Ltd.
629 5th Ave.
Pelham, NY 10830
 $^3\text{H}(\text{O})$

228 Sloan-Kettering Institute
425 East 68th St.
New York, NY 10021
 $^{47}\text{Ca}(0)$, $^{252}\text{Cf}(S)$, $^{133}\text{Xe}(0)$, $^{95}\text{Zr}(0)$

229 Southeastern Missouri State College
Cape Girardeau, MO 63701
 $^{252}\text{Cf}(S)$

230 Southern California, University of
University Park
Los Angeles, CA 90007
 $\text{MCP}(0)$

231 Stanford University
P.O. Box 4409
Stanford, CA 94305
 $^{129}\text{I}(0)$, $^{238}\text{U}(0)$

232 Strong Memorial Hospital
575 Elwood Ave.
Rochester, NY 14603
 $^{28}\text{Mg}(B)$

233 Syntex Corporation
3401 Hillview Ave.
Palo Alto, CA 94304
 $^3\text{H}(0)$

234 Technical Operations
South Ave.
Burlington, MA 01803
 $^{137}\text{Cs}(0)$, $\text{FPSS}(0)$

235 Tempset, Inc.
1251 Grover Rd.
St. Louis, MO 63125
 $^{85}\text{Kr}(0)$

236 Tennessee Technological Institute
Cookeville, TN 38501
 $^{252}\text{Cf}(S)$

237 Tennessee, University of
865 Jefferson Ave.
Memphis, TN 38103
 $^{252}\text{Cf}(S)$

238 Tennessee, University of
Knoxville, TN 37916
 $^{252}\text{Cf}(0)$

239 Tennessee Valley Authority
Wilson Dam, AL 35661
 $^{33}\text{P}(0)$

240 Tennessee, University of (AEC)
1299 Bethel Valley Rd.
Oak Ridge, TN 37830
 $^{28}\text{Mg}(B)$

241 Texas A and M University
P.O. Box 44
College Station, TX 77843
 $^{252}\text{Cf}(0)$, $^{230}\text{Th}(0)$

242 Texas Instruments, Inc.
Science Services Division
P.O. Box 5621
Dallas, TX 75222
 $^3\text{H}(0)$, $^{85}\text{Kr}(0)$

243 Texas Instruments, Inc.
P.O. Box 66027 M/S615
Houston, TX 77006
 $^{85}\text{Kr}(0)$

244 Texas Technological College
Texas Agricultural Experiment Station
Lubbock, TX 79409
 $^{91}\text{Y}(0)$

245 Texas Nuclear
P.O. Box 9627
Austin, TX 78766
 $^{252}\text{Cf}(S)$

246 Texas Woman's University
Box 2906, TWU Station
Benton, TX 76204
 $^{89}\text{Sr}(0)$

247 Texas, University of
Austin, TX 78712
 $^{252}\text{Cf}(0)$, $^{252}\text{Cf}(S)$

248 Texas, University of
Nuclear Medicine Service
Galveston, TX 77550
 $^{43}\text{K}(0)$

249 Texas, University of
M.D. Anderson Hospital & Tumor
Institute
6723 Bertner Ave.
Houston, TX 77025
 $^{252}\text{Cf}(S)$, $^{67}\text{Gd}(0)$

250	3M Company Nuclear Products Twin Cities Arsenal New Brighton, NM 55401 $^{147}\text{Pm}(\text{M})$, $^{147}\text{Pm}(\text{P})$	258	Union Carbide Plant X-10 Oak Ridge, TN 37830 $^{28}\text{Mg}(\text{B})$
251	Transition Electronics Corporation 168 Albion St. Wakefield, MA 01880 $^{85}\text{Kr}(\text{O})$	259	Union Carbide Corporation, Nuclear Division Y-12 Plant P.O. Box Y Oak Ridge, TN 37830 $^{252}\text{Cf}(\text{O})$, $^{153}\text{Gd}(\text{O})$, $\text{MCP}(\text{O})$, $\text{NU}(\text{O})$, $^{33}\text{P}(\text{O})$, $^{147}\text{PM}(\text{O})$, $\text{SS}(\text{O})$, $^{235}\text{U}(\text{O})$
252	Trio-Tech Inc. A Division of Tracer Flo 2435 N. Naomi Burbank., CA 91504 $^{85}\text{Kr}(\text{O})$	260	Union Carbide Corporation Sterling Forest Research Center P.O. Box 234 Tuxedo, NY 10987 $^{137}\text{Cs}(\text{O})$, $^{103}\text{Ru}(\text{O})$, $^{99}\text{Tc}(\text{O})$
253	Tulane University New Orleans, LA 70118 $^{106}\text{Ru}(\text{O})$	261	Unit Process Assemblies, Inc. 53-15 37th Ave. Woodside, NY 11377 $^{147}\text{Pm}(\text{O})$, $^{90}\text{Sr}(\text{O})$
254	Tuskegee Institute P.O. Box 1239 Tuskegee, AL 36088 $^{241}\text{Am}(\text{O})$	262	United Aircraft Corp. Silver Lane East Hartford, CT 06118 $^{153}\text{Gd}(\text{O})$, $\text{MCP}(\text{O})$
255	Union Carbide Corporation, Isotope Sales Division P.O. Box X Oak Ridge, TN 37830 $^{241}\text{Am}(\text{P})$, $^{147}\text{Pm}(\text{P})$	263	United Nuclear Corporation Chemical Operations Route 21-A Hematite, MO 63047 $^{252}\text{Cf}(\text{S})$
256	Union Carbide Corporation, Nuclear Division Oak Ridge Gaseous Diffusion Plant P.O. Box P Oak Ridge, TN 37830 $^{252}\text{Cf}(\text{O})$, $^{241}\text{Pu}(\text{O})$, $^{147}\text{Pm}(\text{P})$	264	United Nuclear Corporation Recovery Operations Wood River Junction, RI 02894 $^{252}\text{Cf}(\text{S})$
257	Union Carbide Corporation, Nuclear Division Oak Ridge National Laboratory P.O. Box X Oak Ridge, TN 37830 $^{241}\text{Am}(\text{O})$, $^{243}\text{Am}(\text{O})$, $^{249}\text{Bk}(\text{O})$, $^{144}\text{Ce}(\text{O})$, $^{249}\text{Cf}(\text{O})$, $^{252}\text{Cf}(\text{O})$, $^{252}\text{Cf}(\text{S})$, $\text{Cm}(\text{S})$, $^{243}\text{Cm}(\text{O})$, $^{244}\text{Cm}(\text{O})$, $^{248}\text{CM}(\text{O})$, $^{60}\text{Co}(\text{S})$, $^{137}\text{Cs}(\text{O})$, $^{253}\text{Es}(\text{O})$, $^{254}\text{Es}(\text{O})$, $^{152+154}\text{Eu}(\text{O})$, $^{153}\text{Gd}(\text{O})$, $^{3}\text{H}(\text{O})$, $^{129}\text{I}(\text{O})$, $\text{MCP}(\text{O})$, $^{95}\text{Nb}(\text{O})$, $^{237}\text{Np}(\text{H})$, $^{147}\text{Pm}(\text{O})$, $^{236}\text{Pu}(\text{O})$, $^{239}\text{Pu}(\text{M})$, $^{239}\text{Pu}(\text{O})$, $^{240}\text{Pu}(\text{O})$, $^{241}\text{Pu}(\text{M})$, $^{241}\text{Pu}(\text{O})$, $^{242}\text{Pu}(\text{O})$, $^{103}\text{Ru}(\text{O})$, $^{106}\text{Ru}(\text{O})$, $\text{Tgs}(\text{O})$, $^{229}\text{Th}(\text{M})$, $^{229}\text{Th}(\text{O})$, $^{234}\text{U}(\text{M})$, $^{255}\text{U}(\text{S})$, $^{236}\text{U}(\text{O})$, $^{238}\text{U}(\text{O})$, $\text{UO}_2(\text{M})$, $^{133}\text{Xe}(\text{O})$, $^{95}\text{Zr}(\text{O})$	265	United Nuclear Industries, Inc. Box 490 Richland, WA 99352 $^{147}\text{Pm}(\text{H})$, $^{147}\text{Pm}(\text{P})$, $^{210}\text{Po}(\text{H})$
266	United States Air Force Kirtland AFB, NM 87117 $\text{Th}(\text{M})$	267	United States Air Force McClellan Air Force Base, CA 95652 $^{37}\text{Ar}(\text{O})$, $^{67}\text{Cu}(\text{O})$, $^{133}\text{Xe}(\text{O})$

268 United States Army
Materials and Mechanics Research Center
Watertown, MA 02172
 $^{252}\text{Cf(S)}$

269 United States Army
Picatinny Arsenal
Dover, NJ 07801
 $^{252}\text{Cf(S)}$

270 United States Army
Frankford Arsenal
Bridge and Tacony Streets
Philadelphia, PA 19137
 $^{85}\text{Kr(0)}$

271 United States Army
Walter Reed Army Medical Center
Washington, D.C. 20012
 $^{133}\text{Xe(0)}$

272 United States Atomic Energy Commission
376 Hudson St., Fifth Floor
New York, NY 10014
 $^{140}\text{Ba(0)}, ^{95}\text{Zr(0)}$

273 United States Atomic Energy Commission
Schenectady Naval Reactors Office
P.O. Box 1069
Schenectady, NY 12301
 $^{252}\text{Cf(0)}, ^{237}\text{Np(0)}, ^{151}\text{Sm(0)}, \text{Tgs(0)}, ^{238}\text{U(0)}$

274 United States Atomic Energy Commission
Washington, D.C. 20545
 $^{137}\text{Cs(0)}, \text{FPSS(0)}, ^{238}\text{U(0)}$

275 United States Bureau of Mines
1605 Evans Ave
Reno, NV 89505
 $^{252}\text{Cf(S)}, \text{Th(M)}$

276 United States Department of Agriculture
State University Station
Fargo, ND 58102
 $^{238}\text{Pu(0)}, ^{60}\text{Co(B)}$

277 United States Department
of Agriculture
Oxford, MS 38655
 $^{252}\text{Cf(S)}$

278 United States Department of Interior
Bureau of Mines
Bldg. 20, Federal Center
Denver, CO 80225
 $^{186}\text{Re(0)}, \text{MCP(0)}$

279 United States Department of Interior
Geological Survey
Branch of Budget and Finance
Washington, D.C. 20000
 $^{252}\text{Cf(S)}$

280 United States National Aeronautics
and Space Adm.
Lewis Research Center
21000 Brookpark Rd.
Cleveland, OH 44135
 $^{3}\text{H(0)}, ^{95}\text{Nb(0)}, ^{233}\text{U(0)}$

281 United States National Aeronautics
and Space Adm.
Goddard Space Flight Center
Glendale Rd.
Greenbelt, MD 20771
 $^{252}\text{Cf(S)}$

282 United States National Aeronautics
and Space Adm.
George C. Marshall Space Flight Center
Huntsville, AL 35812
 $^{67}\text{Cu(0)}, \text{MCP(0)}$

283 United States National Aeronautics
and Space Adm.
Langley Research Center
Langley Station
Hampton, VA 23365
 CSI(0)

284 United States National Aeronautics
and Space Adm.
Manned Spacecraft Center
Houston, TX 77058
 $^{140}\text{Ba(0)}$

285 United States National Aeronautics
and Space Adm.
Ames Research Center
Moffett Field, CA 94035
 FPSS(0)

286 United States National Aeronautics
and Space Adm.
Jet Propulsion Laboratory
Pasadena, CA 91103
 $^{252}\text{Cf(S)}$

287 United States Naval Academy
Annapolis, MD 21402
 $^{252}\text{Cf(S)}$

288 United States Navy
Naval Weapons Laboratory
Dahlgren, VA 22448
 $^{85}\text{Kr}(0)$

289 United States Navy
Naval Facilities Engineering Command
Washington Navy Yard
Washington, D.C. 20390
 $^{90}\text{Sr}(0)$

290 United States Navy
Naval Research Laboratory
Washington, D.C. 20390
 $^3\text{H}(0)$, MCP(0), Tgs(0), $^{236}\text{U}(0)$

291 United States Public Health
Environmental Protect
Accounting Operations Office,
Durham Research Triangle Park, NC 27711
 $^{243}\text{Am}(0)$, $^{85}\text{Kr}(0)$, $^{89}\text{Sr}(0)$

292 United States Public Health Service
P.O. Box 61
Montgomery, AL 36101
MCP(0)

293 United States Public Health Service
National Institutes of Health,
Isotope Laboratory Bldg. 21
Bethesda, MD 20014
 $^{47}\text{Ca}(0)$, MCP(0)

294 United States Public Health
Service Hospital
15th Ave. and Lake St.
San Francisco, CA 94118
 $^{153}\text{Gd}(0)$

295 United States Radium Corporation
4150 Old Berwick Rd.
P.O. Box 380
Bloomsburg, PA 17815
 $^3\text{H}(0)$

296 United States Testing Company
2800 George Washington Way
Richland, WA 99352
 $^{137}\text{Cs}(\text{H})$, $^{131}\text{I}(\text{H})$, Sr(H), $^{90}\text{Y}(\text{H})$

297 Unitrode Corporation
580 Pleasant St.
Watertown, MA 01970
 $^{85}\text{Kr}(0)$

298 UT-AEC
Agriculture' Research Laboratory
1299 Bethel Valley Rd.
Oak Ridge, TN 37830
 $^{47}\text{Ca}(0)$

299 Utah, University of
Purchasing Department
Salt Lake City, UT 84112
 $^{252}\text{Cf}(\text{S})$, $^{243}\text{Cm}(0)$, $^{237}\text{Np}(0)$, $^{238}\text{Pu}(0)$,
 $^{103}\text{Ru}(0)$, $^{133}\text{Xe}(0)$

300 VA, Edward Hines, Jr. Hospital
Hines, IL 60141
 $^{252}\text{Cf}(\text{S})$

301 Vanderbilt University
Business Managers Office
Nashville, TN 37203
 $^{241}\text{Am}(0)$, CSI(0), MCP(0), $^{133}\text{Xe}(0)$

302 Veterans Administration Center
Wood, WI 53193
 $^{43}\text{K}(0)$, $^{133}\text{Xe}(0)$

303 Veterans Administration Hospital
1055 Clermont St.
Denver, CO 80220
 $^{28}\text{Mg}(\text{B})$, $^{133}\text{Xe}(0)$

304 Veterans Administration Hospital
Gainesville, FL 32601
MCP(0), $^{133}\text{Xe}(0)$

305 Veterans Administration Hospital
Newington, CT 06111
MCP(0), $^{28}\text{Mg}(\text{B})$

306 Veterans Administration Hospital
3801 Junipero Serra Blvd.
Palo Alto, CA 94304
 $^{67}\text{Ga}(0)$, $^{203}\text{Pb}(0)$

307 Virginia Hospital, University of
Charlottesville, VA 22901
 $^{28}\text{Mg}(\text{B})$, $^{133}\text{Xe}(0)$

308 Virginia Polytechnic Institute
Blacksburg, VA 24061
 $^{230}\text{Th}(0)$, $^{235}\text{U}(0)$

309 Virginia State College
Physics Department
Hunter-McDaniel Bldg
Petersburg, VA 23803
 $^{239}\text{Pu}(\text{M})$

310 Washington Hospital Center
110 Irving Ave. N.W.
Washington, D.C. 20014
 $^{47}\text{Ca}(\text{O})$

317 Washington State University
Comptroller's Office
Pullman, WA 99163
 $^{252}\text{Cf}(\text{S})$, $^{3}\text{H}(\text{P})$

312 Washington University
Lindell and Skinker St.
St. Louis, MO 63155
 $^{114}\text{In}(\text{O})$, $^{235}\text{U}(\text{O})$, $^{144}\text{I}(\text{O})$, $^{28}\text{Mg}(\text{B})$

313 Washington, University of
Quarternavy Research Oceanography
Seattle, WA 98105
 $^{116}\text{In}(\text{I})$, $^{110}\text{Ag}(\text{I})$, $^{252}\text{Cf}(\text{S})$, RSI(A)

314 Wayne State University
Detroit, MI 48202
 $^{252}\text{Cf}(\text{S})$, $^{129}\text{I}(\text{O})$

315 Western Electric Company
100 Central Ave.
Kearny, NJ 07032
 $^{137}\text{Cs}(\text{O})$

316 Western Electric Company
P.O. Box 241
Reading, PA 19603
 $^{85}\text{Kr}(\text{O})$

317 Western Electric Company, Inc.
P.O. Box 1409
Lawrence, MA 01842
 $^{85}\text{Kr}(\text{O})$

318 Westinghouse Electric Company
Nuclear Instrument and Control Div.
1111 Schilling Road
Hunt Valley, MD 21030
 $^{232}\text{Th}(\text{H})$

319 Westinghouse Electric Corporation
P.O. Box 284
Elmira, NY 14902
 $^{235}\text{U}(\text{O})$

320 Westinghouse Electric Corporation
Astronuclear Laboratory
811'Clairton Rd.
St. Rd. 51
Large, PA 15025
 $^{60}\text{Co}(\text{S})$

321 Westinghouse Electric Corporation
Research & Development Center
Beulah Rd., Churchill Borough
Pittsburgh, PA 15235
 $^{10}\text{B}(\text{H})$, $^{237}\text{Np}(\text{H})$, $^{232}\text{Th}(\text{H})$, $\text{Th-Y}(\text{H})$,
 $^{238}\text{U}(\text{O})$

322 Westinghouse Electric Corporation
Bettis Atomic Power Laboratory
P.O. Box 79
West Mifflin, PA 15122
 $^{252}\text{Cf}(\text{O})$, $^{137}\text{Cs}(\text{O})$, $^{181}\text{Hf}(\text{O})$, $^{233}\text{U}(\text{O})$,
 $^{234}\text{U}(\text{O})$

323 Westinghouse Hanford Company (HEDL)
P.O. Box 1970
Richland, WA 99352
 $^{41}\text{Ar}(\text{U})$, $^{140}\text{Ba}(\text{O})$, $^{252}\text{Cf}(\text{O})$, $^{244}\text{Cm}(\text{O})$,
 $^{237}\text{Np}(\text{O})$, $^{236}\text{Pu}(\text{O})$, $^{89}\text{Sr}(\text{O})$, $^{133}\text{Xe}(\text{O})$,
 $^{91}\text{Y}(\text{O})$, $^{95}\text{Zr}(\text{O})$

324 William Beaumont Hospital
3601 W. Thirteen Mile Rd.
Royal Oak, MI 48067
 $^{85}\text{Kr}(\text{O})$, $^{133}\text{Xe}(\text{O})$

325 Wisconsin, University of Milwaukee
2150 N. Prospect Ave.
Milwaukee, WI 53202
 $^{3}\text{H}(\text{O})$, MCP(O), $^{235}\text{U}(\text{O})$, $^{85}\text{Kr}(\text{O})$

326 Wisconsin, University of
Oshkosh, WI 54904
 $^{252}\text{Cf}(\text{S})$

327 Wyoming, University of
Laramie, WY 82070
 $^{252}\text{Cf}(\text{S})$

328 Yale-New Haven Hospital
P.O. Box 1001
New Haven, CT 06504
 $^{103}\text{Ru}(\text{O})$

329 Yale University
20 Ashmun St.
New Haven, CT 06520
 $^{85}\text{Kr}(\text{O})$, $^{103}\text{Ru}(\text{O})$, RSI(B)

B. FOREIGN

AUSTRALIA

330 Australian Consulate General
636 Fifth Ave.
New York, NY 10020
 $^{238}\text{Pu}(0)$, $^{99}\text{Tc}(0)$, $^{230}\text{Th}(0)$, $^{235}\text{U}(0)$
331 Australian National University
P.O. Box 4
Canberra, A.C.T., Australia
 $^{37}\text{Ar}(0)$

AUSTRIA

332 Austrian Embassy
2343 Massachusetts Ave. N.W.
Washington, D.C. 20008
 $^{240}\text{Pu}(0)$
333 International Atomic Energy Agency
Kärnterring 11-13
A-1010 Vienna, Austria
 $^{252}\text{Cf}(S)$, $^{99}\text{Nu}(0)$, $^{33}\text{P}(0)$, $^{239}\text{Pu}(0)$,
 $^{240}\text{Pu}(0)$, $^{235}\text{U}(0)$

BELGIUM

334 EURATOM
51-53 Rue Belliard
Brussels, Belgium
 $^{236}\text{Pu}(0)$, $^{239}\text{Pu}(0)$, $^{240}\text{Pu}(0)$,
 $^{241}\text{Pu}(0)$, $^{233}\text{U}(0)$, $^{235}\text{U}(0)$, $^{236}\text{U}(0)$
335 European Atomic Energy Commission
Central Bureau for Nuclear
Measurements
Geel, Belgium
 $^{243}\text{Am}(0)$, $^{244}\text{Cm}(0)$
336 IRE, Institut National des
Radioéléments
Ave. Eugène Plasky, 144
1040 Brussels, Belgium
 $^{85}\text{Kr}(0)$, $^{147}\text{Pm}(0)$, $^{133}\text{Xe}(0)$
337 Liege, Universite de
2 Rue Armand Stevart
Liege, Belgium
 $^{243}\text{Am}(0)$

BRAZIL

338 Brazilian Center for Physical Research
Rio de Janeiro, Brazil
 $^{137}\text{Cs}(0)$

339 Comissão Nacional de Energia Nuclear
Rua General Severiano
90-Botafogo
Rio de Janeiro, Brazil
 $^{233}\text{U}(0)$, $^{234}\text{U}(0)$, $^{235}\text{U}(0)$
340 Hospital das Clínicas da Faculdade
de Medicina de Universidade de São Paulo
São Paulo, Brazil
 $^{252}\text{Cf}(0)$
341 Instituto de Energia Atomica
Caixa Postal, 11.049 - Pinheiros
05508 - São Paulo, Brazil
 $^{252}\text{Cf}(S)$

CANADA

342 Alberta, University of
Edmonton, Alberta, Canada
 $^3\text{H}(0)$, $\text{Tgs}(0)$, $^{133}\text{Xe}(0)$
343 Atomic Energy of Canada Limited
Chalk River, Ontario, Canada
 $^{85}\text{Kr}(0)$, $^{242}\text{Pu}(0)$, $^{233}\text{U}(0)$, $^{236}\text{U}(0)$
344 Atomic Energy of Canada Limited
P.O. Box 6300
Postal Station J
Ottawa, Canada
 $^{137}\text{Cs}(0)$, $\text{FPSS}(0)$, $^3\text{H}(0)$, $\text{MCP}(0)$,
 $^{147}\text{Pm}(0)$
345 Atomic Energy of Canada Limited
Tunney's Pasture
Ottawa, Canada
 $^{60}\text{Co}(B)$
346 British Columbia, University of
Vancouver 8, B.C., Canada
 $^3\text{H}(0)$, $\text{Tgs}(0)$, $^{91}\text{Y}(0)$
347 Charles E. Frosst & Co.
16717 Transcanada Highway
Kirkland, Canada
 $^{28}\text{Mg}(B)$
348 Hospital for Sick Children
555 University Ave.
Toronto, Canada
 $^{28}\text{Mg}(B)$
349 Manitoba, University of
Winnipeg, Manitoba, Canada
 $^3\text{H}(0)$, $\text{Tgs}(0)$

350 McGill University
Montreal 2, P.Q., Canada
 $^{133}\text{Xe}(0)$, $^{91}\text{Y}(0)$

351 McMaster University
Hamilton, Ontario, Canada
 $^{89}\text{Sr}(0)$

352 Montreal, Universite de
Montreal, Canada
 $^3\text{H}(0)$

353 Ottawa, University of
Ottawa, Ontario, Canada
 $^{238}\text{U}(0)$

354 Royal Victoria Hospital
Montreal 2, Quebec, Canada
 $\text{MCP}(0)$

355 Simon Fraser University
Burnaby 2, B.C., Canada
 $^{129}\text{I}(0)$

356 Toronto General Hospital
101 College St.
Toronto 2, Ontario, Canada
 $^{133}\text{Xe}(0)$

357 Western Ontario, University of
London, Ontario, Canada
 $^{129}\text{I}(0)$

358 Winnipeg General Hospital
700 Bannatyne Ave.
Winnipeg 3, Manitoba, Canada
 $^{133}\text{Xe}(0)$

CHINA

359 National Cash Register Mfg. Co., Ltd.
No. 55 Wong Chuk Hang Road
Aberdeen Hong Kong, China
 $^{85}\text{Kr}(0)$

360 Semi-Conductor Devices, Ltd.
59-61 Wong Chuk Hang Road
Aberdeen, Hong Kong, China
 $^{85}\text{Kr}(0)$

DENMARK

361 Atomic Energy Commission
Research Establishment Riso
Isotope Division
Roskilde, Denmark
 $^{166}\text{Ho}(\text{S})$

362 Kobenhavns Universitet
Riso Pr.
Roskilde, Denmark
 $^{241}\text{Am}(0)$, $^{237}\text{Np}(0)$

363 Embassy of Denmark
3200 Whitehaven St., NW
Washington, DC 20008
 $^{235}\text{U}(0)$

364 Psychochemistry Institute
Blegdamsvej 9
2100 Copenhagen, Denmark
 $^{28}\text{Mg}(\text{B})$

ENGLAND

365 Alfred Chester Beatty Body Dynamics Lab
Brooklands, Cranbrook,
Kent, England
 $^{28}\text{Mg}(\text{B})$

366 British Embassy
3100 Massachusetts Ave., NW
Washington, DC 20008
 $^{236}\text{U}(0)$

367 Christie Hospital
Withington, Manchester, England
 $^{252}\text{Cf}(\text{S})$

368 Churchill Hospital
Headington, Oxford, England
 $^{252}\text{Cf}(\text{S})$

369 Leeds, University of
Leeds 2, England
 $^{235}\text{U}(0)$

370 Newcastle Upon Tyne, University of
Newcastle Upon Tyne, England
 $^{131}\text{I}(0)$

371 Oxford, University of Nuclear Physics Laboratory
21 Banbury Rd.
Oxford, England
 $^{235}\text{U}(0)$

372 Radiochemical Centre
White Lion Rd.
Amersham, Bucks, England
 $^{252}\text{Cf}(\text{s})$, $^{137}\text{Cs}(0)$, $^{153}\text{Gd}(0)$, $^{129}\text{I}(0)$,
 $^{85}\text{Kr}(0)$, MCP(0), $^{147}\text{Pm}(0)$, $^{151}\text{Sm}(0)$,
 $^{89}\text{Sr}(0)$, $^{90}\text{Sr}(0)$, $^{99}\text{Tc}(0)$, $^{91}\text{Y}(0)$,
 $^{95}\text{Zr}(0)$

373 Lab of the Marine Biological Assn.
Citadel Hill
Plymouth, England
 $^{28}\text{Mg}(\text{B})$

374 Micro-Bio Laboratories
46 Pembridge Rd.
London, England
 $^{28}\text{Mg}(\text{B})$

375 United Kingdom Treasury and Supply
Delegation
25 Broadway
New York, NY 10004
 $^{241}\text{Am}(0)$, MCP(0), $^{89}\text{Sr}(0)$

FRANCE

376 C.E.A., DRI+SCA
29-33 Rue de La Federation
Paris XVE, France
 $^{240}\text{Pu}(0)$, $^{241}\text{Pu}(0)$, $^{236}\text{U}(0)$

377 C.E.A. New York Office
972 Fifth Ave.
New York, NY 10021
 $^{37}\text{Ar}(0)$, $^{99}\text{Tc}(0)$

378 C.E.A.
Department des Radioelements
B. P. No. 2
91190 Gif Sur Yvette, France
 $^{241}\text{Am}(0)$, $^{37}\text{Ar}(0)$, $^{140}\text{Ba}(0)$, $^{137}\text{Cs}(0)$,
 $^{237}\text{Np}(0)$, $^{238}\text{Pu}(0)$, $^{90}\text{Sr}(0)$, $^{99}\text{Tc}(0)$

379 C.N.R.S. New York Office
972 Fifth Ave.
New York, NY 10021
 $^{129}\text{I}(0)$

380 French Atomic Energy Commission
1730 Rhode Island Ave. N. W.
Suite 1217
Washington, D.C. 20036
 $^{238}\text{Pu}(0)$, $^{99}\text{Tc}(0)$

381 Groupe de Physique et Dosimetrie
Services des Piles
Centre d'Etudes
Nucleaires de Saclay (CEA)
Republic of France
 $^{236}\text{U}(0)$

GERMANY

382 American Hoechst Corporation
P.O. Box 2500
Somerville, NJ 08876
 $^{85}\text{Kr}(0)$

383 Darmstadt, Technischen Hochschule
61 Darmstadt, Germany
 $^{252}\text{Cf}(0)$

384 EURATOM Transuranium Institute
P.O. Box 452
75 Karlsruhe, West Germany
 $^{14}\text{C}(0)$, $^{252}\text{Cf}(\text{s})$

385 Gesellschaft fur Kernforschung mbH
Institute fuer Angewandte Reaktor
Physik
Weberstrasse 5
75 Karlsruhe, West Germany
 $^{241}\text{Am}(0)$, $^{237}\text{Np}(0)$, $^{238}\text{Pu}(0)$,
 $^{242}\text{Pu}(0)$, $^{99}\text{Tc}(0)$, $^{233}\text{U}(0)$

386 Hahn-Meitner-Institut
fur Kernforschung Berlin,
Sekton Kernphysik
Berlin, Germany
 ^{252}Cf

387 Kernforschung Sanlage
Postfach 365
517 Julich, Germany
 $^{237}\text{Np}(0)$, $^{99}\text{Tc}(0)$

388 Mainz/Rhein, Universitat
Mainz an Rhein, Germany
 $^{239}\text{Pu}(0)$

389 Marburg/Lahn, Universitat
Marburg/Lahn, Germany
 $^{106}\text{Ru}(0)$, $^{88}\text{Sr}(0)$

390 Max Planck Institut fur Kernphysik
Saupercheckweg
Heidelberg, Germany
 $^{140}\text{Ba}(0)$

391 Max-Planck-Institut fur Physik
und Astrophysik
Inst. fur Extraterrestrische Physik
8046 Garching, West Germany
 $^{244}\text{Cm}(0)$

392 Messrs Kuhne & Nagel
Flughafenburo
Berlin-Tempe1haf, West Germany
 $^{28}\text{Mg}(\text{B})$

393 Messrs Kuhne & Nagel
Flughafenburo
505 Porz, Flughafen
Koln-Bonn , Germany
 $^{28}\text{Mg}(\text{B})$

394 Munchen, Technischen Hochschule
Arcistrasse 21
8 Munchen 2
Germany
 $\text{MCP}(0)$, $^{151}\text{Sm}(0)$, $^{133}\text{Xe}(0)$

395 W. Maier Kamm. Ges.
722 Schwenningen a. N.
Postfach (P.O.B.) 125
West Germany
 $^{147}\text{Pm}(0)$

396 Physikalisch-Technische Bundesanstalt
33 Braunschweig
Bundesal1u 100
West Germany
 $^{252}\text{Cf}(\text{S})$

GREECE

397 Greek Atomic Energy Commission,
N.R.C. Democ
Agbia Paraskevi Attikis
Athens , Greece
 $^{129}\text{I}(0)$

HUNGARY

398 Institute of Experimental Physics
Kossuth University
Bem ter' 18.A
Debrecen, Hungary
 $^{252}\text{Cf}(\text{S})$

INDIA

399 Bhabha Atomic Research Centre
Government of India
3rd Floor Mohatta Bldg.
Bombay 1, India
 $^{244}\text{Cf}(0)$, $^{244}\text{Cm}(0)$, $^{238}\text{U}(0)$

ISRAEL

400 Embassy of Israel
1621-22nd St., NW
Washington, DC 20008

201 Government of Israel
Ministry of Defense
850 Third Avenue
New York, NY 10022
 $^{129}\text{I}(0)$

40% Hebrew University of Jerusalem, The
Jerusalem, Israel

99Tc(0)

403 Landseas Corporation
1212 Avenue of the Americas
New York, NY 10036

$^{252}\text{Cf}(0)$

404 Technion-Israel Institute of Technology
P.O. Box 4910
Haifa, Israel

CSI(0)

405 Weizmann Institute of Science
P.O. Box 26
Rehovat, Israel

$^{252}\text{Cf}(0)$

ITALY

406 CNEN-Servizio Approvvigionamenti
Viale Regina Margherita 125
Rome, Italy
 $^{232}\text{Th}(0)$

407 Comito Nazional 1'Energia Nucleaire
818 185h Street, NW
Washington, DC 20009

$^{252}\text{Cf}(0)$, $^{242}\text{Pu}(0)$

408 Euratom C.C.R.
Ispra (Varese) , Italy

$^{252}\text{Cf}(\text{S})$

JAPAN

409 Cancer Institute Hospital
Kami-Ikebukuro, Toshima-Ku
Tokyo , Japan
 $^{252}\text{Cf}(\text{s})$

410 Daiichi Pure Chemicals Company, Ltd.
No. 1, 3-Chome, Edobashi, Nihonbashi
Chuo-Ku, Tokyo 103 Japan
 $^3\text{H}(\text{o})$

411 Japan Radioisotope Association
Hon-Komagome 2 Chome 28
Bunkyo-Ku
Tokyo , Japan
 $^{85}\text{Kr}(\text{o})$

412 Mitsubishi International Corporation
277 Park Ave.
New York, NY 10017
 $^{243}\text{Am}(\text{o})$, $^{140}\text{Ba}(\text{o})$, $^{137}\text{Cs}(\text{o})$,
FPSS(0), MCP(0), $^{95}\text{Nb}(\text{o})$,
 $^{147}\text{Pm}(\text{o})$,
 $^{89}\text{Sr}(\text{o})$, $^{95}\text{Zr}(\text{o})$

413 Mitsus and Company (USA), Inc.
200 Park Avenue
New York, NY 10017
 $^{234}\text{U}(\text{o})$

414 Sumitomo Shoj i America , Inc.
345 Park Ave., 14th Floor
New York, NY 10022
 $^{85}\text{Kr}(\text{o})$

MEXICO

415 Comision Nacional de Energia Nuclear
Miguel Angel de Quevedo 530A
Mexico 21, D. F.
 $^{137}\text{Cs}(\text{o})$, FPSS(0)

NETHERLANDS

416 N. V. Philips-Duphar
P.O. Box 2
Weesp, The Netherlands
 $\text{CSI}(\text{o})$

417 Rijksinkoopbureau
(Netherlands Govt. Purchasing Office)
55 A Laan van Meerdervoort
The Hague , Nether1ands
 $^{133}\text{Xe}(\text{o})$

PUERTO RICO

418 Puerto Rico, University of
Puerto Rico Nuclear Center
College Station
Mayaques , Puerto Rico 00709
 $^{60}\text{Co}(\text{B})$, $^{131}\text{I}(\text{o})$, FPSS(0)

SPAIN

419 Junta de Energia Nuclear - Reactor
Ciudad Universitaria
Madrid 3, Spain

 $^{235}\text{U}(\text{o})$ SWEDEN

420 Aktiebolaget Atomenergi
Studsvik,
Nyköping , Sweden
 $^{242}\text{Pu}(\text{o})$, $^{133}\text{Xe}(\text{o})$

421 Research Institute of National Defense
Forsvarets Forskningsanstalt
Avdelning 1, Sundbyberg 4, Sweden
 $^{106}\text{Ru}(\text{o})$

422 Uppsala, University of
Uppsala, Sweden
 $^{161}\text{Hf}(\text{o})$, $^{106}\text{Ru}(\text{o})$

SWITZERLAND

423 Embassy of Switzerland
2900 Cathedral Avenue, N.W.
Washington, D.C. 20008
 $^{230}\text{Th}(\text{o})$, $^{235}\text{U}(\text{o})$

424 European Organization of
Nuclear Research
1211 Geneva 23, Switzerland
 $^{238}\text{U}(\text{o})$

425 Swiss Federal Institute of
Techno1ogy
Scneggstrasse 5
CH-8006 Zurich, Switzerland
 $^{89}\text{Sr}(\text{o})$, $^{90}\text{Sr}(\text{o})$

426 Radium-Chemie
A. Zeller and Company
9053 Teufen / Ar
Switzerland
 $^3\text{H}(\text{o})$, $^{147}\text{Pm}(\text{o})$

11. ALPHABETICAL LIST OF ISOTOPES,
CROSS-REFERENCED TO CUSTOMER NUMBERS

A. DOMESTIC

Americium
12, 67, 107

Americium 241
26, 67, 84, 88, 93, 159, 167, 177, 178,
179, 196, 254, 255, 257, 301

Americium 243
15, 26, 96, 257, 291

Antimony 124
19

Antimony 125
19

Argon 37
163, 164, 267

Argon 41
323

Barium 140
2, 19, 26, 59, 74, 129, 272,
284, 323

Boron 10
14, 20, 321

Calcium 45
19

Calcium 47
30, 31, 62, 108, 138, 228, 298

Californium 249
257

Californium 252
1, 3, 7, 10, 11, 15, 22, 25, 26, 31,
34, 35, 36, 39, 42, 45, 46, 51, 58, 59,
63, 69, 71, 72, 73, 75, 76, 82, 83, 87,
88, 96, 97, 100, 107, 104, 112, 113,
120, 123, 125, 132, 133, 134, 136, 140,
152, 154, 155, 157, 160, 163, 164, 183,
184, 185, 188, 190, 197, 198, 207, 209,
212, 215, 219, 221, 222, 223, 228, 229,
236, 237, 238, 241, 245, 247, 249, 256,
257, 259, 263, 264, 268, 269, 273, 275,
277, 279, 281, 286, 287, 295, 300, 311,
313, 314, 322, 323, 326, 327

Carbon 14
26

Cerium
26

Cerium 139
19

Cerium 141
19

Cerium 144
42, 107, 133, 257

Cerium + Praseodymium 144
19

Cesium 134
17, 19

Cesium 137
19, 26, 83, 84, 88, 93, 99, 107, 131,
133, 153, 167, 183, 196, 234, 257, 296,
315

Cesium 144
15

Cobalt 60
13, 18, 19, 96, 136, 199, 257, 276, 320

Copper 67
48, 94, 111, 141, 267, 282

Curium
67, 257

Curium 243
257, 299

Curium 244
15, 26, 69, 82, 114, 257, 323

Curium 245
15

Curium 246
15

Curium 248
69, 257

Cyclotron Service Irradiations
26, 107, 132, 167, 175, 204, 216, 283,
301

Depleted Uranium
19, 26

Einsteinium 253
15, 69, 182, 257

Einsteinium 254
2, 15, 257

Enriched Uranium
26

Europium 152
19

Europium 154
19

Europium 155
19

Europium 152+154
2, 15, 93, 181, 257

Fermium 257
38, 42, 144

Fission Products Special Services
2, 30, 31, 83, 136, 142, 174, 234,
274, 285

Fluorine 18
216

Gadolinium 67
249

Gadolinium 153
43, 167, 182, 257, 259, 262, 294

Gallium 67
11, 51, 66, 81, 116, 149, 183, 308

Hafnium 181
15, 189, 204

Hydrogen 3
19, 26

Indium 111
148

Indium 114
312

Indium 115
2

Indium 116
313

Iodine 123
50

Iodine 129
1, 15, 51, 108, 136, 163, 164, 167,
186, 198, 231, 257, 314

Iodine 131
19, 26, 37, 53, 201, 214, 296

Iodine 144
312

Iron 52
216

Iron 59
19

Iridium 192
21, 52

Krypton 85
4, 8, 9, 17, 23, 26, 32, 40, 42, 47,
56, 64, 77, 78, 79, 80, 85, 89, 91, 92,
96, 98, 105, 106, 107, 109, 110, 114,
115, 117, 143, 144, 153, 156, 157, 166,
169, 181, 195, 202, 235, 242, 243, 251,
252, 270, 288, 291, 297, 316, 317, 324,
325, 329

Lead 203
173, 182, 206, 306

Magnesium
60

Magnesium 28
63, 232, 240, 258, 303, 305, 307, 312

Mercury 28
33

Mercury 203
19

Miscellaneous Compound Preparation
11, 15, 27, 30, 31, 40, 44, 54, 83, 84,
93, 119, 150, 153, 156, 161, 167, 182,
188, 230, 257, 259, 262, 278, 282, 290,
292, 293, 301, 304, 305, 325

Neodymium 147
182

Neptunium 237
2, 15, 19, 26, 40, 56, 88, 159, 205
257, 273, 299, 321, 323

Neptunium 239
19, 26

Niobium
2, 26

Niobium 95
19, 84, 153, 280

Normal Uranium
26, 99, 161, 204, 259

Phosphorus 33
107, 167, 225, 239, 259

Plutonium
69, 160, 161, 178

Plutonium 236
2, 12, 15, 74, 127, 137, 211, 257, 323

Plutonium 238
25, 26, 30, 40, 41, 67, 86, 87, 99, 118, 133, 153, 159, 161, 178, 184, 196, 210, 220, 276, 299

Plutonium 239
15, 19, 26, 42, 68, 133, 151, 164, 178, 257, 309

Plutonium 240
257

Plutonium 241
114, 256, 257

Plutonium 242
15, 67, 123, 127, 257

Polonium 210
19, 26, 56, 179, 265

Potassium 43
55, 101, 156, 302

Praseodymium 143
15

Praseodymium 144
26

Promethium 143
26

Promethium 147
19, 96, 114, 133, 142, 153, 181, 250, 255, 259, 261, 265

Protactinium 231
206

Reactor Service Irradiations
14, 15, 50, 90, 126, 136, 168, 171, 172, 188, 204, 208, 329

Rhenium 186
278

Rubidium 85
19

Ruthenium 103
2, 19, 26, 30, 31, 49, 69, 167, 257, 299, 328, 329

Ruthenium 106
15, 19, 42, 48, 93, 96, 107, 108, 119, 162, 167, 178, 180, 199, 253, 257

Samarium 145
26

Samarium 151
2, 107, 125, 167, 273

Scandium 46
19

Silver
19

Silver 110
313

Sodium 22
19

Special Services
26, 27, 40, 136, 259

Strontium
14, 296

Strontium 85
19

Strontium 89
15, 19, 29, 48, 84, 97, 103, 114, 121, 167, 187, 201, 215, 246, 291, 323

Strontium 90
14, 16, 26, 59, 93, 107, 167, 183, 261, 289

Sulfur 35
19

Target Preparation, Radioisotope
30, 31, 40, 69, 107, 205, 257, 273, 290

Technetium 99
30, 31, 135, 153, 167, 260

Thorium
42, 149, 164, 213, 220, 266, 275

Thorium 229
164, 257

Thorium 230
15, 102, 206, 241, 308

Thorium 232
99, 139, 319, 321

Thorium+Yttrium
321

Thulium 170
15

Tritium
28, 30, 31, 40, 47, 61, 64, 65, 70, 85, 107, 122, 124, 128, 135, 145, 158, 167, 176, 177, 181, 190, 195, 205, 218, 224, 225, 227, 233, 242, 257, 280, 290, 295, 311, 325

Uranium
24, 40, 149, 165

Uranium 233 15, 99, 123, 171, 280, 322	Californium 244 399
Uranium 234 15, 257	Californium 252 333, 340, 341, 367, 368, 372, 383, 384, 386, 396, 398, 403, 405, 407, 408, 409
Uranium 235 15, 34, 40, 42, 88, 114, 120, 164, 168, 193, 201, 259, 308, 312, 318, 325	Carbon 14 384
Uranium 236 15, 40, 42, 257, 290	Cesium 137 338, 344, 372, 378, 412, 415
Uranium 238 15, 34, 42, 88, 139, 193, 201, 207, 231, 257, 273, 274, 321	Cobalt 60 345, 418
Uranium 235 257	Curium 244 335, 391
Uranium Dioxide 220, 257	Cyclotron Service Irradiations 404, 416
Wolfram 185 19	Fission Products Special Services 344, 412, 415, 418
Xenon 133 2, 5, 6, 15, 43, 57, 88, 95, 121, 122, 130, 147, 158, 163, 164, 170, 173, 191, 192, 194, 200, 203, 218, 226, 228, 257, 267, 271, 299, 301, 302, 303, 304, 307, 323, 324	Gadolinium 153 372
Yttrium 88 19	Hafnium 161 422
Yttrium 90 14, 19, 26, 69, 296	Holmium 166 361
Yttrium 91 15, 19, 134, 244, 323	Iodine 129 355, 357, 372, 379, 397, 401
Zinc 65 26	Iodine 131 370, 418
Zirconium 26, 31	Krypton 85 336, 343, 359, 360, 372, 382, 411, 414
Zirconium 95 2, 15, 19, 26, 30, 31, 47, 93, 214, 228, 257, 272, 323	Magnesium 28 347, 348, 364, 365, 373, 374, 392, 393
B. FOREIGN	Miscellaneous Compound Preparation 344, 354, 372, 394, 412
Americium 241 362, 375, 378, 385	Neptunium 237 362, 378, 385, 387
Americium 243 335, 337, 412	Niobium 95 412
Argon 37 331, 377, 378	Normal Uranium 26
Barium 140 378, 390, 412	Phosphorus 33 333
	Plutonium 236 334
	Plutonium 238 330, 378, 380, 385, 400

Plutonium 239
333, 334, 388

Plutonium 240
332, 333, 334, 376

Plutonium 241
334, 376

Plutonium 242
343, 385, 407, 420

Promethium 147
336, 344, 372, 395, 412

Ruthenium 106
389, 421, 422

Samarium 151
372, 394

Strontium 89
351, 372, 375, 412, 425

Strontium 90
372, 378, 425

Target Preparation, Radioisotope
342, 349

Thorium 230
330, 400, 423

Thorium 232
406

Technetium 99
330, 372, 377, 378, 380, 385, 402

Tritium
342, 344, 346, 349, 352, 410, 426

Uranium 233
334, 339, 343, 385

Uranium 234
339, 413

Uranium 235
330, 333, 334, 339, 363, 369, 371, 419, 423

Uranium 236
334, 343, 366, 376, 381

Uranium 238
353, 399, 424

Xenon 133
342, 350, 356, 358, 394, 417

Yttrium 91
346, 350, 372

Zirconium 95
372, 412

111. ALPHABETICAL LIST OF STATES AND COUNTRIES
CROSS-REFERENCED TO CUSTOMER NUMBERS

A. DOMESTIC

Alabama	6, 7, 239, 254, 282, 292	Minnesota	22, 141, 153, 154
Arizona	9, 17	Mississippi	155, 156, 277
California	3, 20, 23, 28, 32, 33, 34, 35, 36, 37, 38, 39, 40, 43, 44, 45, 47, 65, 76, 78, 87, 88, 92, 93, 99, 105, 112, 113, 114, 115, 118, 126, 127, 128, 130, 142, 143, 145, 166, 176, 191, 194, 207, 210, 217, 218, 226, 230, 231, 233, 252, 267, 285, 286, 294, 306	Missouri	135, 157, 229, 235, 263, 312
Colorado	56, 57, 67, 102, 200, 278, 303	Nevada	211, 275
Connecticut	24, 224, 262, 305, 328, 329	New Hampshire	168, 219
District of Columbia	77, 94, 95, 163, 164, 271, 274, 279, 289, 290, 310	New Jersey	4, 5, 27, 64, 66, 98, 146, 169, 203, 215, 269, 315
Florida	81, 82, 86, 117, 148, 304	New Mexico	41, 42, 72, 74, 80, 170, 220, 250, 266
Georgia	96, 97, 144, 212	New York	30, 31, 59, 60, 63, 73, 90, 104, 111, 116, 125, 131, 149, 171, 172, 173, 179, 205, 208, 214, 225, 227, 228, 232, 260, 261, 272, 273, 318
Idaho	2, 14, 16	North Carolina	70, 174, 291
Illinois	12, 13, 15, 48, 62, 68, 108, 162, 175, 216, 300	North Dakota	276
Indiana	202, 204	Oregon	192, 193
Kansas	120, 121	Ohio	25, 50, 51, 53, 54, 55, 85, 91, 107, 109, 159, 160, 161, 165, 187, 188, 189, 190, 196, 209, 280
Kentucky	122	Oklahoma	123
Louisiana	83, 132, 253	Pennsylvania	10, 21, 46, 100, 106, 178, 180, 197, 198, 199, 201, 295, 316, 321, 322
Maryland	18, 119, 136, 281, 287, 293, 319	Rhode Island	264
Massachusetts	11, 29, 49, 52, 75, 79, 101, 110, 134, 138, 139, 140, 167, 195, 213, 234, 251, 268, 297, 317	South Carolina	69, 152, 222, 223
Michigan	71, 124, 150, 151, 314, 324	Tennessee	182, 183, 184, 185, 186, 236, 237, 238, 240, 256, 257, 258, 259, 298, 301

Texas	
1, 58, 61, 84, 129, 137, 147, 158, 177, 181, 221, 241, 242, 243, 244, 245, 246, 247, 248, 249, 284	
Utah	
299	
Virginia	
89, 103, 283, 288, 307, 308, 309	
Washington	
19, 26, 207, 265, 296, 311, 313, 323	
Wisconsin	
8, 302, 325, 326	
Wyoming	
327	
B. FOREIGN	
Australia	
330, 331	
Austria	
332, 333	
Belgium	
334, 335, 336, 337	
Brazil	
338, 339, 340, 341	
Canada	
342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358	
China	
359, 360	
Denmark	
361, 362, 363, 364	
England	
365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375	
France	
376, 377, 378, 379, 380, 381	
Germany	
382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396	
Greece	
397	
Hungary	
398	
India	
399	

IV. RADIOISOTOPE SALES AND TRANSFERS - FY 1973

A = Argonne National Laboratory O = Oak Ridge National Laboratory
 B = Brookhaven National Laboratory P = Battelle-Pacific Northwest Laboratory
 H = Hanford Engineering Development Laboratory S = Savannah River Plant
 I = Idaho Nuclear Corp. U = United Nuclear Inc.
 M = Mound Laboratory

Isotope	Ship- ments	Domestic		Foreign		Project (a)		Total				
		Millicuries, unless noted	Dollars	Ship- ments	Millicuries, unless noted	Dollars	Ship- ments	Millicuries, unless noted	Dollars	Ship- ments	Millicuries, unless noted	Total Dollars
Americium-241(H)							13	0.9 μ Ci		13	0.9 μ Ci	
Americium-241(O)	59	1,073,696.0 mg	161,054	6	254,590 mg	38,189	2	31,000 mg	4,349	67	1,365,286 mg	203,592
Americium-241(P)							4	2,873 Ci		4	2,873 Ci	
Americium-243(O)	1		100	4	35 mg	3,500	4	16,000 mg	100	9	16,035 mg	3,700
Argon-37(O)	2	10	505	7	46.4	2,245				9	56.4	2,750
Argon-41(U)							5	1.5 Ci	2,400	5	1.5 Ci	2,400
Antimony-124(H)							1	0.8		1	0.8	
Antimony-125(H)							1	0.5		1	0.5	
Antimony-124(I)							2	12,124,000	5,348	2	12,124,000	5,348
Barium-140(O)	3	2	75	9	55	413	8	51.5	437	20	108.5	925
Barium-Lanthanum-140(H)							1	1		1	1	
Berkelium-249(O)							6	18.1 mg		6	18.1 mg	
Boron-10(H)							5	0.207		5	0.207	
Bromine-80(I)							7	461	46	7	461	46
Calcium-45(H)							1	12 μ Ci		1	12 μ Ci	
Calcium-47(O)	73	55.1	14,019	-	-		12	3.8	1,000	85	58.9	15,019
Carbon-14(H)							1	0.14 μ Ci		1	0.14 μ Ci	
Californium-249(O)							3	3.9 mg		3	3.9 mg	
Californium-252(B)							1	150 μ g		1	150 μ g	
Californium-252(H)							1	0.31 Ci		1	0.31 Ci	
Californium-252(O)	12	3.4 mg	455	9		220	17	6.1 mg	758	38	9.5 mg	1,433
Californium-252(S)	5	7,326 mg	82,435	6	12,302 mg	137,834				11	19,628 mg	220,269
Cerium-139(H)							1	0.4		1	0.4	
Cerium-141(H)							2	2.9		2	2.9	
Cerium-144(O)	1	100	50	-			34	40,037	1,701	35	40,137	1,751
Cerium-Praseodymium-144(H)							4	29,511 μ Ci		4	29,511 μ Ci	
Cesium-134(H)							2	10		2	10	
Cesium-134(I)	1	50	45	-						1	50	45
Cesium-137(B)							2	87,560 Ci		2	87,560 Ci	

Isotope	Domestic			Foreign			Project (a)			Total			
	Ship- ments	Milli- curies, unless noted	Dollars	Ship- ments	Milli- curies, unless noted	Dollars	Ship- ments	Milli- curies, unless noted	Dollars	Ship- ments	Milli- curies, unless noted	Total Dollars	
Cesium-137(H)	-	-	-	-	-	-	7	12,400	μCi	-	7	12,400	μCi
Cesium-137(O)	54	25,975,435	15,056	9	22,157.00	10,077	64	52,258		30	127	48,185,593	25,163
Cobalt-60(B)	-	-	-	-	-	-	6	442,600	μCi	-	6	442,600	μCi
Cobalt-60(H)	-	-	-	-	-	-	1	5.8		-	1	5.8	-
Cobalt-60(I)	1	4,750,000	3,912	-	-	-	-	-	-	-	1	4,750,000	3,912
Cobalt-60(U)	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt-60 Metal (O)	6	1,500	600	-	-	-	3	3.2	C1	-	3	3.2	C1
Cobalt-60 Processed(O)	-	-	28,378	-	-	-	-	-	-	6	150.0	600	
Copper-64(I)	-	-	-	-	-	-	2	10		7	2	10	7
Copper-66(I)	-	-	-	-	-	-	2	1		7	2	1	7
Copper-67(O)	39	252.4 mg	12,780	-	-	-	-	-	-	39	252.4 mg	12,780	
Curium-243(O)	1	-	-	-	-	-	1	3.0	mg	-	2	3.0	mg
Curium-244(O)	3	1 mg	300	3	21.1 mg	2,113	5	20,252	mg	100	11	20,274.6	mg
Curium-245(O)	-	-	-	-	-	-	1	14	mg	-	1	14	mg
Curium-246(O)	-	-	-	-	-	-	1	7	mg	-	1	7	mg
Curium-248(O)	-	-	-	-	-	-	8	18.7	mg	-	8	18.7	mg
Einsteinium-253(O)	-	-	-	-	-	-	11	2.6	mg	-	11	2.6	mg
Einsteinium-254(O)	-	-	-	-	-	-	6	90	mg	30	6	90	mg
Europium-152(H)	-	-	-	-	-	-	3	11		-	3	11	-
Europium-154(H)	-	-	-	-	-	-	1	1		-	1	1	-
Europium-155(H)	-	-	-	-	-	-	1	0.5		-	1	0.5	-
Europium-152 + 154(O)	2	4	80	-	-	-	3	3.4		90	5	7.4	170
Fermium-257(O)	2	-	-	-	-	-	3	-	-	-	3	-	-
Fission Products(O)	-	-	-	2	10.0	55	2	20.0		55	4	30.0	110
Gadolinium-153(O)	4	6,000.0	5,000	1	50.0	250	8	1,951.0		5,500	13	8,201.0	10,750
Gallium-67(O)	72	22,831.2	36,741	-	-	-	64	5,547.7		47,294	136	28,378.9	84,035
Hafnium-180(I)	-	-	-	-	-	-	1	23,400		532	1	23,400	532
Hafnium-181(I)	-	-	-	-	-	-	1	920		24	1	920	24
Hafnium-181(O)	3	5.5	75	1	10.0	30	2	18.0		55	6	33.5	160
Hydrogen-3(I)	-	-	-	-	-	-	16	0.41		-	16	0.41	-
Hydrogen-3(O)	171	164,543,000.0	149,123	9	30,5 3,602 8	23,830	22	3,435,412.5		4,787	202	198,536,015.1	177,740
Indium-111(O)	1	50.0	650	-	-	-	-	-	-	-	1	50.0	650
Indium-114(O)	1	310	30	-	-	-	-	-	-	-	1	3.0	30
Indium-115(H)	-	-	-	-	-	-	-	<0.1	μCi	-	1	<0.1	μCi

Isotope	Domestic			Foreign			Program (a)			Total		
	Ship- ments	Milli- curies, unless noted	Dollars									
Iodine-116(I)	1	22,000	31				1	2	7	2	22,002	
Iodine-128(I)	7	25	49						7	25		49
Iodine-129(O)	12	2,564 mg	2,986	5	3,600 mg	2,825	3	2,150.0 mg	1,737	20	8,314.0 mg	7,548
Iodine-131(H)							8	7.938		8	7.938	
Iodine-131(O)	38	3,915.0	3,885				2	25	50	40	3,940.0	3,935
Iridium-192(H)							4	72 Ci		4	72 Ci	
Iridium-192(O)	1	1.0	25							1	1.0	5
Iron-55(P)							1	0.1 Ci		1	0.1 Ci	
Iron-59(H)							1	0.7		1	0.7	
Krypton-85(O)	148	5,512,650.1	186,872	19	157,050.0	27,364	13	220,030	5,680	180	6,889,730.1	219,916
Lead-203(O)	3	16.0					1	3.0		4	19.0	
Lead-210(H)							1	<0.1 μ Ci		1	<0.1 μ Ci	
Magnesium-28(B)	42	5.9	8,260	9	1.15	1,610				51	7.05	9,870
Mercury-203(H)							2	2.0		2	2.0	
Miscellaneous Compounds(O)	43	2,477.5 units	9,260	2	1.0 units	3,250	31	5,702.6 units	5,673	76	8,181.1 units	18,183
Neodymium-147(O)							1	50.0		1	50.0	
Neptunium-237(H)							4	3.2005		4	3.2005	
Neptunium-237(O)	4	2,700 mg	802	8	137,182 mg	30,878	6	24,490.9 mg	3,844	18	164,372.9	35,524
Neptunium-237(U)							1	5 kg		1	5 kg	
Niobium-95(O)	30	129.5	3,238	1	10.0	250	3	6.0	150	34	145.5	3,638
Phosphorus-32(I)	1	5.0	7							1	5	7
Phosphorus-33(O)	31	1,636.0	16,910	8	1,379	10,250	1	1.0	35	40	3,016.0	27,195
Plutonium(U)							2	5,469 kg		2	5,469 kg	
Plutonium-236(O)	2		(3,254)	1	10,000.0 mg	6,000	6			1,292	9	10,000.0
Plutonium-238(H)							1	1.2		1	1.2	
Plutonium-238(O)	20	194,964.7 mg	207,634	9	115,758 mg	139,395	8	6,737.8 mg	600	37	317,460.5 mg	347,629
Plutonium-238(P)	3	64.8 g	8,158				35	27,130.4 g		38	27,195.2 g	8,158
Plutonium-239(H)							9	100.2		9	100.2	
Plutonium-239(M)	2	128 g	200				17	6,940 g	20,550	19	7,068 g	20,750
Plutonium-240(O)							1	4,501.3 mg		6	5,202.3 mg	1,874
Plutonium-241(M)							1	13 g		1	13 g	
Plutonium-241(O)	1			4	300.0 mg	1,906	4	16,143.0 mg		9	16,443.0 mg	2,006
Plutonium-242(O)	2	4.5 mg	72	4	41.0 mg	651	4	15,010.3 mg		10	15,055.8 mg	723
Polonium-210(H)							6	134.0		6	134.0	
Polonium-210(M)	2	302 Ci	47,476							2	302 Ci	47,476
Potassium-43(O)	63	214.0	21,400							63	214.0	21,400

Isotope	Domestic				Foreign				Project (a)				Total			
	Ship- ments	Milli- curies, unless noted	Dollars	Ship- ments	Milli- curies, unless noted	Dollars	Ship- ments	Milli- curies, unless noted	Dollars	Ship- ments	Milli- curies, unless noted	Dollars	Ship- ments	Milli- curies, unless noted	Dollars	
Praseodymium-143(O)								1	4.0	200	1	4.0		200		
Promethium-143(H)								1	0.004		1	0.004				
Promethium-147(H)								15	10.8002		15	10.8002				
Promethium-147(O)	15	163,746,000.0	39,669	84	20,471,000.0	7,152	7	995,000.0	1,978	106	185,212,000.0			48,799		
Promethium-147(P)	4	202,000 Ci					2	75,000 Ci		6	277,000 Ci					
Rubidium-86(H)								1	3.5		1	3.5				
Ruthenium-103(H)								2	11		2	11				
Ruthenium-103(O)	6	14.0	350		-		9	31.0	775	15	45.0		1.125			
Ruthenium-106(H)							4	14		4	14					
Ruthenium-106(O)	10	57.0	1,425	2	410	100	9	44.0	1,100	21	105.0		2.625			
Samarium-145(H)							1	0.0016		1	0.0016					
Samarium-151(O) (Sm as Sm ₂ O ₃)	4	69.0 mg	2,484	3	1,060.0 mg	2,260	2	50.0 mg	2,139	9	1,179 mg		6.883			
Scandium-46(H)							1	2.2		1	2.2					
Silver-110(H)							1	1.8		1	1.8					
Silver-110(I)	1	267,000	426							1	267,000		426			
Sodium-22(H)							1	1		1	1					
Sodium-24(I)	6	8	42							6	8		42			
Strontium-85(H)							5	10.3		5	10.3					
Strontium-89(H)							1	1.2		1	1.2					
Strontium-89(O)	20	129.5	1,768	11	175.0	2,362	3	24.0	324	34	328.5		4.454			
Strontium-90(O)	31	221,247,630.0	44,448	8	1,481,250.0	750				39	222,728,800.0		45.198			
Strontium-90(P)							1	110 Ci		1	110 Ci					
Strontium-Yttrium-90(H)							17	14.7111		17	14.7111					
Sulfur-35(I)							1	0.012		1	0.012					
Technetium-99(O)	4	14,000.0 mg	835	10	28,217.9 mg	1,976	1	2,000.0 mg	161	15	44,217.9 mg		2.972			
Thorium-229(M)							1	4.5 mg		1	4.5 mg					
Thorium-229(O)	1	0.1 mg	10				1	0.5 mg		2	0.6 mg		10			
Thorium-230(O)	5	15.0 mg	568	3	13.0 mg	300	1	2.0 mg		9	30.0 mg		868			
Thorium-232(O)	2	25,000,194.0 mg	728	1	25,000.0 mg	25				3	25,025,194.0 mg		753			
Thulium-170(I)	3	87,000.0	2,147							3	87,000		2.147			
Uranium-233(O)	3	2,650.0 mg	836	4	500.0 mg	950	3	50.4 mg		10	3,200.4 mg		1.786			
Uranium-234(M)							1	5.1 g		1	5.1 g					
Uranium-234(O)							1	200.0 mg	1,580	2	1,200.0 mg		1,580			
Uranium-235(O)	21	114,476.0 mg	2,458	7	49,180.0 mg	1,637	15	1,030,379.0 mg		43	1,194,035.0 mg		4.095			
Uranium-236(O)							6	366.6 mg	361	4	111.3 mg		361			

Isotope	Ship- unless noted	Domestic Millicuries			Foreign Millicuries unless noted			Project (a) Millicuries unless noted			Total Millicuries unless noted			Total Dollars	
		Dollars	Ship- ments	Dollars	Ship- ments	Dollars	Ship- ments	Dollars	Ship- ments	Dollars	Ship- ments	Dollars			
Uranium-238(0)	20	1,085,910.0		2,123	5	38,460.0 mg		237	10	517,134.9 mg		35	1,641,504.9 mg	2,360	
Uranium—Depleted(M)								1	229		1		229		
Uranium--Depleted(U)								1	523 kg		1		523 kg		
Uranium dioxide(M)								2	116 g		2		116 g		
Uranium--Normal(0)	2	1,000,000.0 mg		(2)	1	15.0 mg		18	1	1,349,000.0 mg		4	2,349,015.0 mg	16	
Uranium--Normal(U)								1	13 kg		1		13 kg		
Wolfram-185(H)								1	0.012		1		0.012		
Xenon-125(I)								2	11		2		11	14	
Xenon-133(0)	462	486,840.0		27,690	132	310,050.0		13,912	42	22,730.0		2,175	636	819,620.0	43,777
Yttrium-88(H)								4	712			4	712		
Yttrium-90(H)								15	14.711			15	14.711		
Yttrium-90(0)								1	5.0		55	1	5.0	55	
Yttrium-91(0)	1	2.0		25	6	52.0		575	4	32.0		355	11	86.0	955
Yttrium-91(H)								1	1.8			1	1.8		
Zinc-65(H)								1	0.0024			1	0.0024		
Zirconium-95(H)								1	0.3 μ Ci			1	0.3 μ Ci		
Zirconium-95(0)	6	410.0		680	12	155.3		854	9	59.0		358	27	624.3	1.892
Zirconium—Niobium-95(H)								3	60.528			3	60.528		
Cyclotron Service Irradiations(A)	184			15,921					145				329	15,921	
Cyclotron Service Irradiations(0)(b)	16	17.0		85,532	12	296.0		16,759	2	2.0		2,375	30	315.0	104.666
Heavy Element Technical Charges(0)(c)				60,011					29,112				56,590	145,713	
Reactor Service Irradiations(A)	71			8,589					252				323	8,589	
Reactor Service Irradiations(B)	59			10,433					758				45,795	817	
Special Services(0)(d)		4		24,723	1				40,900	21			36,300	26	
TOTAL		1,931		\$1,359,493	450				\$566,829	1,940			\$264,962	4,321	\$2,191,284

(a) Materials are sometimes transferred between AEC sites without dollars or at costs other than normal.

(b) Radioisotopes produced by cyclotron service irradiations: ^{133m}Ba , $^{205,206,207}\text{Bi}$, ^{113}C , $^{129,134}\text{Cs}$, $^{55,57,61}\text{Co}$, ^{64}Cu , $^{149,150,153}\text{Eu}$, ^{18}F , $^{67,69,70}\text{Ga}$, $^{67,68}\text{Ge}$, ^{197}Au , ^{173}Hf , ^{111}In , ^{123}I , ^{173}Lu , ^{143}Pm , ^{189}Re , ^{99}Rh , $^{83,84}\text{Rb}$, $^{95m,99m}\text{Tc}$, ^{168}Tm , $^{87,88}\text{Y}$, ^{105}Ag , ^{26}Al , ^{109}Cd .

(c) Includes such items as fabricating, plating, and encapsulating sources, rolling foils, and handling.

(d) Includes such items as target fabrication, source encapsulation, and preparation of special chemical forms.